

Making Repository Deposit Easier With SWORD

15th October 2009

DSpace User Group Meeting 2009
Göteborgs Universitet, Sweden

Adrian Stevenson
SWORD Project Manager



UKOLN is supported by: **JISC**



www.ukoln.ac.uk



A centre of expertise in digital information management

SWORD Quick Introduction

- Vision: *“lowering barriers to deposit”*
- **Simple Web service Offering Repository Deposit** (at least for now!)
- Aims to provide a standard mechanism for ‘doing deposit’ into repositories
- JISC funded project started 2007, SWORD 2 from June 2008
- SWORD3 starting now



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

What is it?

- A lightweight protocol for deposit
- A profile of the Atom Publishing Protocol
- Implementations of SWORD in IntraLibrary, Fedora, DSpace and Eprints repositories
- SWORD clients – web-based, desktop, Facebook client, MS Office add-on, widgets



www.ukoln.ac.uk

A centre of expertise in digital information management



Motivations – why?

- no standard interface available for tagging, packaging or authoring tools to upload objects into a repository
- no standard interface for transferring digital objects between repositories
- no way to deposit into more than one repository with one ‘click’
- no way of initiating a deposit workflow from outside a repository system



www.ukoln.ac.uk

A centre of expertise in digital information management



Use Cases

- Deposit from a Desktop/Online tool
- Multiple deposit - e.g. deposit to institutional and (mandated) funders' repository with one action
- Machine deposit - e.g. automated deposit from a laboratory machine
- Migration/transfer - e.g. to a preservation service
- Mediated deposit - e.g. deposit by a nominated representative, to additional repositories



www.ukoln.ac.uk

A centre of expertise in digital information management



The Project Partners

- **SWORD partners:**
 - UKOLN - Adrian Stevenson (project management)
 - University of Cambridge – Jim Downing (profile)
 - University of Aberystwyth (DSpace, Fedora, & clients) – Stuart Lewis, Neil Taylor, Glen Robson, Richard Jones
 - University of Southampton (EPrints) – Les Carr, Seb Francois
 - Intrallect (IntraLibrary) – Andrew Robson
 - University of York - Julie Allinson



www.ukoln.ac.uk

A centre of expertise in digital information management



SWORD AtomPub Profile



www.ukoln.ac.uk

A centre of expertise in digital information management



Standards

- WebDAV (<http://www.webdav.org/>)
- JSR 170 (<http://www.jcp.org/en/jsr/detail?id=170>)
- JSR 283 (<http://www.jcp.org/en/jsr/detail?id=283>)
- SRW Update (<http://www.loc.gov/standards/sru/>)
- Flickr Deposit API (<http://www.flickr.com/services/api/>)
- Fedora Deposit API
(<http://www.fedora.info/definitions/1/0/api/>)
- OKI OSID (<http://www.okiproject.org/>)
- ECL (<http://ecl.iat.sfu.ca/>)
- **ATOM Publishing Protocol**
(<http://www.ietf.org/htmlcharters/atompub-charter.html>)



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

“The Atom Publishing Protocol is an application-level protocol for publishing and editing Web resources”

- **benefits**

- supports many parameters and requirements - file deposit
- already exists and has growing support - blogs
- has an extension mechanism
- good fit with Web Architecture

- **drawbacks / risks**

- retrofit?
- designed for a single package/file or an atom document – means that we need to package metadata and files



www.ukoln.ac.uk

A centre of expertise in digital information management



SWORD AtomPub Profile

- SWORD profile builds on AtomPub
- Provides set of extensions, constraint relaxations and enforcements for:
 - Clients posting compound resources (zip,tar)
 - When mediated deposit required
 - Where workflows involved
- Part A adds to AtomPub, Part B highlights how SWORD diverges
- SWORD compliance does not preclude AtomPub compliance



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

SWORD APP Package Support

- AtomPub uses MIME to describe resources
- Inadequate for compound types e.g.
 - Zip, tar
 - METS, IMS-CP, MPEG21, DIDL packages
- SWORD extends AtomPub:
 - sword:acceptPackaging element
 - Value taken from SWORD package types



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

SWORD APP Mediated Deposit

- SWORD deposit client user may not be owner of resource
- SWORD allows clients to set a HTTP header:
 - X-On-Behalf-Of
- Assumes trust between owner and mediating user



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

SWORD APP Developer Features

- No-Op (Dry Run)
- Verbose Output
- Client and Server Identity
- Auto-Discovery
- Error Documents
- Nested Service Description



www.ukoln.ac.uk

A centre of expertise in digital information management



SWORD APP Error Documents

- SWORD adds new class of doc to AtomPub to allow better error description
 - ErrorContent
 - ErrorChecksumMismatch
 - ErrorBadRequest
 - TargetOwnerUnknown
 - MediationNotAllowed



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

SWORD Profile of AtomPub

- Part B follows AtomPub spec highlighting where SWORD profile diverges
- Covers:
 - Protocol Operations
 - Retrieving Service Document
 - Listing Collections
 - Creating a Resource
 - Editing a Resource - Not currently implemented
 - Category Documents – MUST NOT be required
 - Service Documents
 - SWORD requires support for service documents
 - new elements: version, verbose, noOp, maxUploadSize



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

How it Works

- APP and SWORD work by issuing HTTP requests (GET, POST)
 - GET Service Document (explain/discover)
 - POST a file or package to collection URI
- HTTP response and ATOM document is returned
- HTTP basic authentication is required



www.ukoln.ac.uk

UKOLN

A centre of expertise in digital information management



www.bath.ac.uk

SWORD In Use



www.ukoln.ac.uk

A centre of expertise in digital information management



Implementations

- Repository implementations
 - DSpace
 - EPrints
 - IntraLibrary
 - Fedora
- Client implementations
 - command-line, desktop and web clients
 - Facebook Client
 - Java, PHP and .NET libraries
 - Deposit from within MS Word
 - Feedforward / FOREsite and others:
<http://www.swordapp.org/sword/implementation>

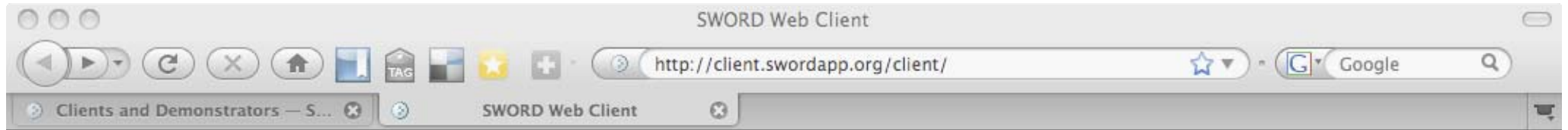


www.ukoln.ac.uk

A centre of expertise in digital information management



Web Interface



SWORD Servlet Client - select a service document

Select a service document, or enter another URL:

URL: Other:

Username:

Password:

On behalf of:

Done

Fedora deposit

SWORD Servlet Client: Service Document

http://client.swordapp.org/client/

SWORD Web Client: Service Document

Server details:

- Status: Code: 200, Message: 'OK'
- URL: <http://glen.dnsalias.org/sword/servicedocument>
- Version: 1.3
- Supports verbose output: true
- Supports noOp: true
- Maximum file upload size: -2147483648 kB

Service document:

- Workspace: *Fedora SWORD Workspace*
 - Collection: [Open Collection](#)
 - Abstract: *This is a collection of objects which can be freely deposited to. This is aviable for the SWORD test project*
 - Treatment: *Preservation actions may occur on submitted deposits*
 - Collection policy: *This collection accepts any deposit from anyone*
 - Mediation: true
 - Accepts: *text/xml, application/zip, applicator/x-zip-compressed, application/atom+xml, image/gif, image/jpeg, image/jpg*
 - Accepted packaging formats: *http://purl.org/net/sword-types/METSospaceSIP (0.9), http://www.loc.gov/METS/ (0.9)*
 - Collection: [Geography Collection](#)
 - Abstract: *This is a nested collection of geography objects*
 - Treatment: *Preservation actions may occur on submitted deposits*
 - Collection policy: *This collection accepts any deposit*
 - Mediation: true
 - Accepts: *application/zip*
 - Accepted packaging formats: *http://purl.org/net/sword-types/METSospaceSIP (0.9)*

Done

Fedora Deposit response



SWORD Web Client: Deposit

ID: sword:1008

- **Title:** Uploaded by the JISC funded SWORD project
- **Author:** sword
- **Summary:** null
- **Updated:** 2009-03-22T16:53:00Z
- **Link:** (edit) <http://glen.dnsalias.org/sword/collection:open/sword:1008>
- **Treatment:** Preservation actions may occur on submitted deposits
- **Generator:** null
- **User Agent:** CASIS Test Client
- **Packaging:** null

Full response

```
<?xml version="1.0" encoding="UTF-8"?>
<atom:entry xmlns:atom="http://www.w3.org/2005/Atom" xmlns:sword="http://purl.org/net/sword/">
  <atom:id>sword:1008</atom:id>
  <atom:author>
    <atom:name>sword</atom:name>
  </atom:author>
  <atom:content type="image/jpg" src="http://glen.dnsalias.org:8080/fedora/get/sword:1008/ServletClient-1"/>
  <atom:generator uri="http://glen.dnsalias.org/sword" version="1.3"/>
  <atom:link href="http://glen.dnsalias.org/sword/collection:open/sword:1008" rel="edit" hreflang="en"/>
  <atom:published>2009-03-22T16:53:00Z</atom:published>
  <atom:rights type="text"/>
  <atom:summary type="text"/>
  <atom:title type="text">Uploaded by the JISC funded SWORD project</atom:title>
  <atom:updated>2009-03-22T16:53:00Z</atom:updated>
  <sword:treatment>Preservation actions may occur on submitted deposits</sword:treatment>
  <sword:noOp>false</sword:noOp>
  <sword:userAgent>CASIS Test Client</sword:userAgent>
</atom:entry>
```

Validate

Done

Validation



SWORD Validation Results











These results show a list of any errors, warnings and information messages that are relevant to the specified element. The full element is shown [below](#).

The results represent the hierarchy of elements that are present in the submitted element.

Context

The following context was use when validating the element

No Op: false
Verbose: false
User Agent: null
Contributor: null

-  **atom:entry**
 -  **sword:packaging**
This element is not present, but it SHOULD be included. If the POST request results in the creation of packaged resource, the server MAY use this element to declare the packaging type. If used it SHOULD take a value from [SWORD-TYPES].
 -  **atom:id** Value: *sword:1008*
 -  **atom:author**
 -  **atom:name** Value: *sword*
 -  **atom:content**
 -  **atom:content** type="image/jpeg"
 -  **atom:content** src="http://glen.dnsalias.org:8080/fedora/get/sword:1008/ServletClient-1"
 -  **atom:generator**
 -  **atom:generator** uri="http://glen.dnsalias.org/sword"

Deposit via Facebook

facebook

Home

Profile

Friends

Inbox 8

Adrian Stevenson

Settings

Logout

SWORDAPP – The Repository Deposit Tool



Welcome back to SWORDAPP [Adrian!](#)

Home

Deposit an item

See my items

See items by my friends

About SWORDAPP

Deposit an item – Step 1: Select a repository

Select an existing repository:

DSpace test server

Or Enter a new one:

Username:

a.stevenson@ukoln.ac.uk

Password:

••••••••


Deposit on behalf of:

Next >

 **SWORDAPP – The Repository Deposit Tool**

Welcome back to SWORDAPP **Adrian!**

[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 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...](#)

 **SWORDAPP – The Repository Deposit Tool**

Welcome back to SWORDAPP [Adrian!](#)

[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:

Journal article



Has the item been peer reviewed:

Yes



Title:

Ade in Amsterdam

Abstract:

Ade sitting in Amsterdam cafe

1st author first name:

Adrian

1st author surname:

Stevenson

 **SWORDAPP – The Repository Deposit Tool**

Welcome back to SWORDAPP [Adrian!](#)

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

You have succesfully deposited 'Ade in Amsterdam' whose URL is now <http://dspace.swordapp.org/jspui/handle/123456789/58>

- Search DSpace**

[Advanced Search](#)
[Home](#)
- Browse**
[Communities & Collections](#)
[Issue Date](#)
[Author](#)
[Title](#)
[Subject](#)
- Sign on to:**
[Receive email updates](#)
[My DSpace authorized users](#)
[Edit Profile](#)
[Help](#)
[About DSpace](#)

[DSpace SWORD Demo](#) >
[Demo community](#) >
[Research materials](#) >

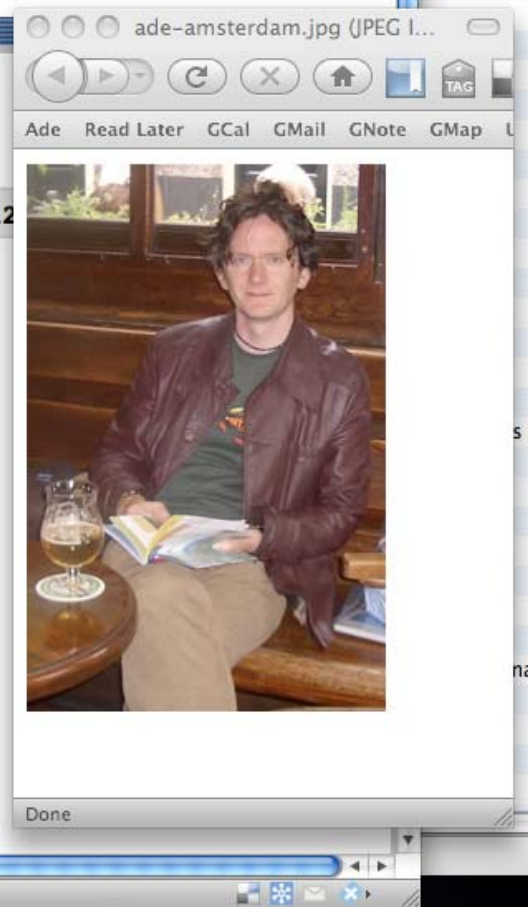
Please use this identifier to cite or link to this item: <http://hdl.handle.net/123456789/58>

Title: Ade in Amsterdam
Authors: [Stevenson, Adrian](#)
Issue Date: 22-Mar-2009
Abstract: Ade sitting in Amsterdam cafe
URI: <http://hdl.handle.net/123456789/58>
Appears in Collections: [Research materials](#)

Files in This Item:

File	Description	Size	Format
ade-amsterdam.jpg		18.21 kB	JPEG View/Open

All items in this repository are protected by copyright, with all rights reserved.





Services & Posted Files

- ▼ <http://sword.aber.ac.uk/dspace-sword/servicedocument>
 - ▼ DSpace at My University
 - Collection with workflow step 1
 - Daggers
 - SWORDS
 - Simple Collection
- ▼ <http://glen.dnsalias.org/sword/servicedocument>
 - ▼ Fedora SWORD Workspace
 - Open Collection**

Collection Policy	This collection accepts any deposit from anyone
Namespace	uri
Treatment	Preservation actions may occur on submitted deposits
Mediation	true
Accepts	text/xml application/zip application/x-zip-compressed application/atom+xml image/gif image/jpeg image/jpg

Messages

```
status: Requesting the document from http://cakeordeath.ecs.soton.ac.uk/cgi/servicedocument
status: Requesting the document from http://sword.aber.ac.uk/dspace-sword/servicedocument
<?xml version="1.0" encoding="UTF-8"?>
<service xmlns:dcterms="http://purl.org/dc/terms/" xmlns:atom="http://www.w3.org/2005/Atom"
xmlns:sword="http://purl.org/net/sword/" xmlns="http://purl.org/atom/app#">
  <sword:level>1</sword:level>
  <sword:verbose>true</sword:verbose>
  <sword:noOp>true</sword:noOp>
  <workspace>
    <atom:title type="text">DSpace at My University</atom:title>
    <collection href="http://sword.aber.ac.uk/dspace-sword/deposit/123456789/28">
      <atom:title type="text">Collection with workflow
        step 1</atom:title>
      <sword:collectionPolicy>NOTE: PLACE YOUR OWN LICENSE
        HERE This sample license is provided for informational
        purposes only. NON-EXCLUSIVE DISTRIBUTION LICENSE
        By signing and submitting this license, you
        (the author(s) or copyright owner) grants to
        DSpace University (DSU) the non-exclusive right
        to reproduce, translate (as defined below),
        and for distribution your submission (including
```


Netvibes Widget

Ade (396)

http://www.netvibes.com/#General

Ade Read Later GCal GMail GNote GMap UoB Mail UoB Cal Twitter Splitweet Tweet Grid Facebook To-Do RRT Blog Ring Modulator Trains Iceland xr Cineworld Cornerhouse


Clients and Demonstrators — S... SWORD Servlet Client: Deposit SWORD logins — Google Notebo... Ade (396)


Google™ Google Search


+ General (55) Edit Web / Elearning (341) Social Media Manchester Jazz Philosophy / Psycho / Lit Crit Stuff Ebay Semantic Web e-Learning Identity


Repositories New Tab

Manchester, United Kingdom Share Edit X

 **22 Mar Sunday**
10°C
only show today

 **Monday**
3/9°C

 **Tuesday**
3/9°C

 **Wednesday**
6/9°C

10 Day Weather Forecast Powered by: The Weather Channel ©


Web Search Share Edit X

Search

Google.co.uk Yahoo! Ask Snap

No search entry yet

Facebook - Adrian Stevenson (17) Share Edit X

 Profile Friends Networks


8 unread messages
0 unread pokes
1 friend request
2 group invites
6 event invites

What are you doing right now?

Search within friends

Friends Photo view

SWORD - rwidgets.co.uk Share Edit X



The **Simple Web-service Offering Repository Deposit (SWORD)** project is a lightweight protocol for deposit in the form of a profile of the Atom Publishing Protocol.

[Click here to visit the official website](#)

[Click here to start using the widget](#)

BBC (38) BBC News - News Front Page Share Edit X

- Tory tax cut 'not high priority' - 1 hour ago
- Pope Mass craws big Angola crowds - 2 hours ago
- PM leads tributes to Jade Goody - 2 hours ago
- Explosions in 'huge' scrap blaze - 57 minutes ago
- Peer demands probe into RBS claim - 51 minutes ago
- Thousands getting terror training - 5 hours ago

next →

Video Search Share Edit X

Search


Youtube Google Myspace Mofile


No search entry yet

Twitter / adrianstevenson Share Edit X

What are you doing? Characters available: 140

Update

 **libbymiller** death bunnies on in 20 minutes on film4
<http://www.imdb.com/title/tt0073480/> less than a minute ago from TwitterFox

 **richshaw** Going to Chorlton for tea. Can anyone recommend anywhere? about a minute ago from TwitterFor

Documentally Saving cheerio to @granumentally

Done

Manchester, United Kingdom

22 Mar Sunday 10°C

Monday 3/9°C Tuesday 3/9°C Wednesday 6/9°C

10 Day Weather Forecast Powered by: The Weather Channel

Web Search

Google.co.uk Yahoo! Ask Snap

No search entry yet

BBC (38) BBC News - News Front Page

- Tory tax cut 'not high priority' - 1 hour ago
- Pope Mass draws big Angola crowds - 2 hours ago
- PM leads tributes to Jade Goody - 2 hours ago
- Explosions in 'huge' scrap blaze - 57 minutes ago
- Peer demands probe into RBS claim - 31 minutes ago
- Thousands getting terror training - 5 hours ago

next

Video Search

Youtube Google Myspace Mofile

No search entry yet

Images Search

Flickr Google Ask Yahoo!

Facebook - Adrian Stevenson

Profile Friends Networks

8 unread messages 0 unread pokes 1 friend request 2 group invites 6 event invites

What are you doing right now?

Search within friends

Friends Photo view

Twitter / adrianstevenson

What are you doing? Characters available: 140

Update

paulfabretti It drives me mad when people dismiss genuinely useful technology because they can't be arsed to listen for a few seconds. 4 minutes ago from TwitterBerry

timoreilly I do agree w @atduskgreg that Friedman's piece <http://bit.ly/6YltW> is more constructive than Rich's, but Rich sounds impt warning for Obama 4 minutes ago from twtrr

libbymiller death bunnies on in 20 minutes on film4 <http://www.imdb.com/title/tt0078480/> 6 minutes ago from



Deposit Created!

Title	Attempts to detect retrotransposition and de novo deletion of Alus and other dispersed repeats at specific loci in the human genome
ID	http://dspace.swordapp.org/jspui/handle/123456789/56
Author	Hollies, C.R.
Summary	Dispersed repeat elements contribute to genome instability by de novo insertion and unequal recombination between repeats. To study the dynamics of these processes, we have developed single DNA molecule approaches to detect de novo insertions at a single locus and Alu-mediated deletions at two different loci in human genomic DNA. Validation experiments showed these approaches could detect insertions and deletions at frequencies below 10^{-6} per cell. However, bulk analysis of germline



Deposit Created!

Title	6a6176612e7574696c2e52616e646f6d40316237323
ID	atom:com.intralibrary.sword:118
Author	SWORD User
Summary	
Treatment	
Generator	http://sword.intralibrary.com
Link	http://sword.intralibrary.com/IntraLibrary-Deposit/edit/learning_object_id118
Edit	http://sword.intralibrary.com/IntraLibrary-Deposit/media/learning_object_id118

Published

[Click here to make another deposit](#)

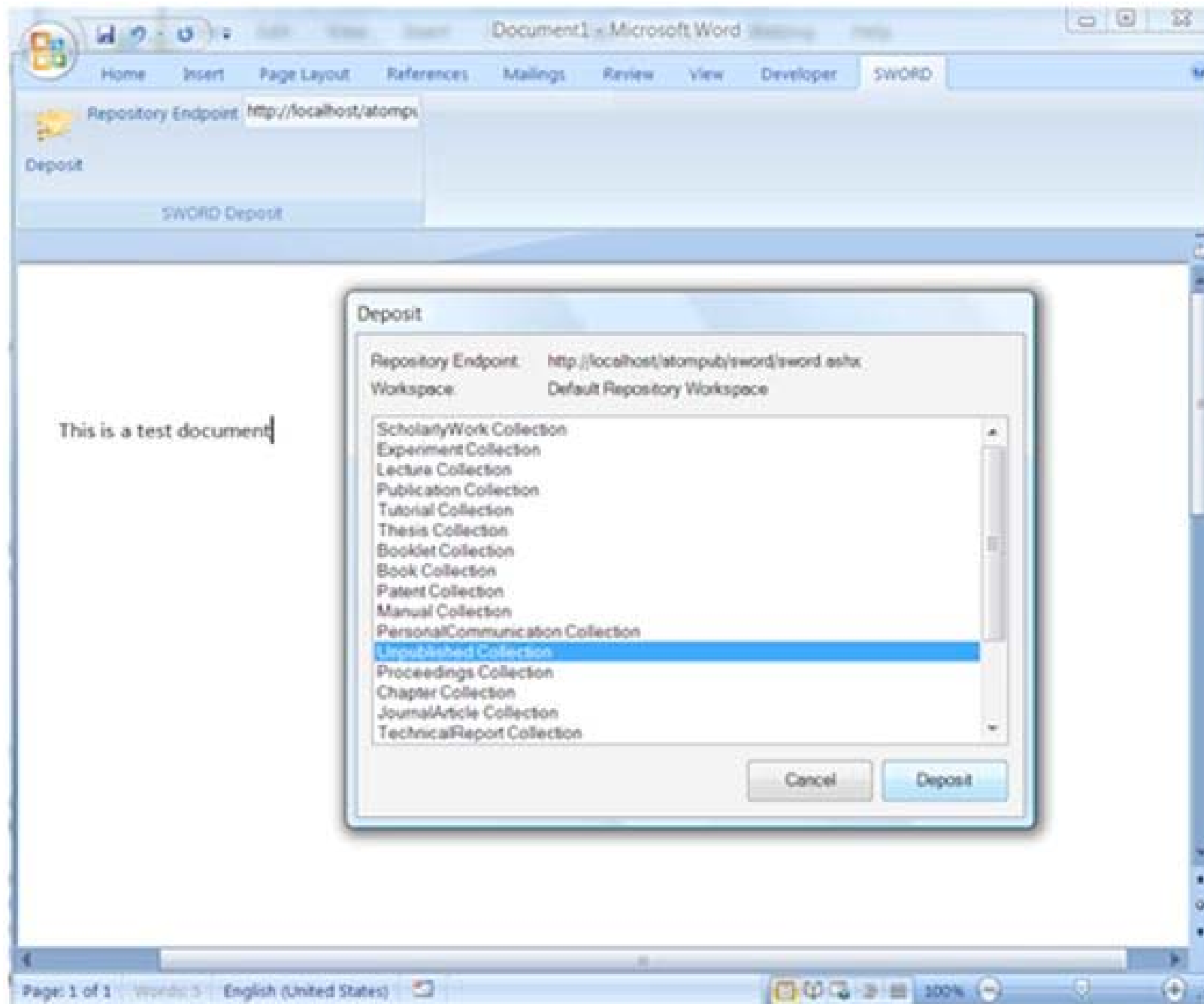
FeedForward Deposit

The screenshot shows a Mac OS X desktop with the FeedForward application open. The application window has a title bar with 'Grab', 'File', 'Edit', 'Capture', 'Window', and 'Help' menus. Below the title bar is a toolbar with icons for a grid, a bar chart, a circular gauge, a share icon, and a plug icon. The main content area is divided into three sections:

- Left Panel:** A search bar labeled 'Search text' and a list of articles. The list has columns for 'Title' and 'Date Published'. The selected article is 'Twitter for Conference Back-Channel Chat'.
- Middle Panel:** A preview of the selected article, showing the title, author, date, and a paragraph of text.
- Right Panel:** A workspace titled 'Untitled (0)' containing a 'SWORD objects' icon and a 'BurningStubble.zip' label. A green arrow points from a 'BurningStubble.zip' file on the desktop to this label.

The desktop background is a dark purple and blue gradient. The dock at the bottom contains various application icons including Safari, Firefox, iPhoto, iMovie, iTunes, and others. The system status bar at the top right shows the date and time as 'Sun 18:31:02' and a search icon.

OfficeSWORD Add-on



SWORD in use

- More implementations ...
 - ICE project is using SWORD
 - EU PEER project implementing SWORD
 - Microsoft Zentity Research-Outputs Repository
 - OAI-ORE - FOREsite work
 - EM-Loader
 - YODL-ING – University of York
 - Others coming along all the time
- Collaboration with publishers
- Any more? Let us know.



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

SWORD Phase 3

- 11 months, starting now
- Support interest and activities around SWORD
- SWORD package types list/registry
- SWORD enabled repositories registry?
- Formal standardisation?
- SWORDCamp?
- Renewed and increased advocacy efforts



www.ukoln.ac.uk

A centre of expertise in digital information management



SWORD3 - Development work

- Maintenance and development of SWORD application profile
- Update SWORD demonstrator repositories and clients
- Synergies with project activity in the area
- Tie in with repository handshake strand of international repositories workshop



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

SWORD 3 - Community Support & Advocacy

- Reflective piece on why SWORD has been a success
- Devise a support model for SWORD
- Increase uptake by marketing and promotion
- Additional use and implementation case studies



www.ukoln.ac.uk

A centre of expertise in digital information management



SWORD3 - Prototyping Registries

- Prototype SWORD package types registry.
- Prototype 'SWORD enabled' repositories registry?
- Explore adding 'SWORD enabled' info to existing registries e.g. OpenDOAR



www.ukoln.ac.uk

A centre of expertise in digital information management



www.bath.ac.uk

SWORD3 - Standardising SWORD

- Investigate standardising SWORD profile with e.g. NISO, CEN, and others. Suggestions?
- Evaluate cost/benefit and make recommendations.
- Consider alternatives to formal standardisation



www.ukoln.ac.uk

A centre of expertise in digital information management



SWORD3 - SWORDCamp

- Idea from Monday's deposit show-and-tell in London
- A week of hands on development
 - agree package standard in advance
 - Based on OAI-ORE
 - update demonstrators
 - update their clients/code
- Timed to coincide with Open Repositories 2010



www.ukoln.ac.uk

A centre of expertise in digital information management



More Info and Contact

- SWORD Website:
- <http://www.swordapp.org>
- <http://twitter.com/swordapp>
- General queries:
 - Adrian Stevenson
a.stevenson@ukoln.ac.uk
- Technical queries:
 - Sword sourceforge list
sword-app-tech@lists.sourceforge.net



www.ukoln.ac.uk

A centre of expertise in digital information management

