

# **Report on visit to Makerere University Library for the purposes of training and consultation regarding the institutional repository: <http://makir.mak.ac.ug>**

## 1. Introduction

### 1.1. Systems

### 1.2. Operations

## 2. Project Principals

## 3. Systems

### 3.1. Operational installation location

### 3.2. DSpace upgrade

### 3.3. Daily maintenance

### 3.4. Restore services

## 4. Operations

### 4.1. Simple academic submission

### 4.2. Default licence

### 4.3. Custom index

### 4.4. XMLUI news

### 4.5. Google analytics

## 5. Digitisation

## 6. Exclusions

### 6.1. Disaster Recovery

### 6.2. Policy

## 7. Recommendations

### 7.1. Test/development system

### 7.2. Community of practice

### 7.3. Journal publishing

### 7.4. Systems capacity

### 7.5. IFLA-IT conference

## 8. Future Work

### 8.1. Upgrade to Mirage2 theme

### 8.2. Enable other DSpace 4.2 features

### 8.3. Community/collection hierarchy management

## 1. Introduction

The IDS (<http://www.ids.ac.uk>) in the person of Mr Nason Bimbe invited Mr Hilton Gibson to visit Kampala, Uganda and assist the Makerere University Library (<http://mulib.mak.ac.ug>) as part of the digitisation project being undertaken under the Global Open Knowledge Hub (GOKH) programme whose aims are (a) preserving and disseminating the historical outputs of Makerere University and (b) populating the BLDS Digital Library with Southern-published research outputs (BLDS Digital Library is an online archive which forms part of OpenDocs, the IDS repository). See: <http://opendocs.ids.ac.uk/opendocs>

The training is aimed to equip ICT and Library staff at Makerere University with skills to enable them (a) to manage the digitisation project effectively and (b) to manage and maintain their own Dspace repository that is used to disseminate the university's intellectual outputs.

The work aimed at objective (b) above was organised into two dimensions, library repository systems and library repository operations.

### 1.1. Systems

Training of systems personnel in the best practices for a long term supported, institutional repository system for the library. See: <http://bit.ly/goodir> and <http://bit.ly/garpir>.

### 1.2. Operations

Training of library personnel in the operation of an institutional repository, taking into account the experience gained from almost five years operational experience with SUNScholar (<http://scholar.sun.ac.za>) and three years with SUNDigital (<http://digital.lib.sun.ac.za>)

The IDS graciously agreed to cover all travelling and accommodation costs for Mr Hilton Gibson.

Mr Hilton Gibson arrived in Kampala, Uganda on the 27th of Nov 2014 and after a few days rest, began consultations on Monday the 1st Dec 2014 and finished on Friday the 5th of Dec 2014.

In the beginning, after several boardroom meetings with Andrew Mwesigwa and other colleagues from Makerere University Library and Makerere University central IT, it was decided that the top priority be the upgrade and "standardisation" of the installation of the current institutional repository system, that had already passed through several hands.

After the systems work was completed, several customisations to suit the Makerere University experience were undertaken on the system.

## 2. Project Principals

1. IDS - Nason Bimbe: <https://www.linkedin.com/pub/nason-bimbe/7/556/a68>
2. Makerere Library - Andrew Mwesigwa: <http://ug.linkedin.com/pub/andrew-mwesigwa/47/a2b/821>
3. Consultant - Hilton Gibson: <http://za.linkedin.com/in/hiltongibson>
4. Makerere IT - Juma Katongole: <http://ug.linkedin.com/pub/juma-katongole/35/996/b49>
5. Makerere Library IT - Timothy Sentamu: <https://www.linkedin.com/pub/timothy-sentamu/2b/50b/8b3>

### 3. Systems

Most of the systems work involved standardising the installation according to best systems practice for Unix/Linux servers.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Capacity\\_Building/Digital\\_Repository\\_Systems\\_Management](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Capacity_Building/Digital_Repository_Systems_Management)

Some of the major system work that was undertaken is detailed below:

#### **3.1. Operational installation location**

Move the DSpace installation from **/dspace** to **/home/dspace**. According to Unix systems best practice one NEVER installs operational software in a top level folder. Unfortunately the DSpace documentation recommends this type of installation which defeats Unix system administration best practice. Mr Hilton Gibson has tried to inform the DSpace developer community, who do not seem to be interested in Unix systems best practice.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Reference\\_Architecture](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Reference_Architecture)

#### **3.2. DSpace upgrade**

After system standardisation, the DSpace version was upgraded from 3.2 to 4.2.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Upgrading/Repository\\_Software](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Upgrading/Repository_Software)

#### **3.3. Daily maintenance**

A system of daily backups and daily automatic maintenance was instituted.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Disaster\\_Recovery/Backups/Local](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Disaster_Recovery/Backups/Local)  
[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Daily\\_Admin](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Daily_Admin)

#### **3.4. Restore services**

The digital object identifier handle server, the OAI-PMH remote harvester interface and the SWORD remote deposit service were returned to proper operation.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Handle\\_Server](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Handle_Server)  
<http://wiki.lib.sun.ac.za/index.php/SUNScholar/OAI-PMH>  
[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Remote\\_Deposit](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Remote_Deposit)

The system was standardised according to Unix systems best practice and according to what is documented in great detail on the Stellenbosch University Library Wiki, the Libopedia (<http://wiki.lib.sun.ac.za>).

This should help the local personnel to perform future system upgrades, maintenance and customisation themselves.

In addition several diagnostic system tools for Java web application servers were introduced to the local systems personnel.

## 4. Operations

After the system was upgraded and standardised, discussions were held to determine what customisations were urgently required for library operations.

Some of the major operational customisations are detailed below:

### **4.1. Simple academic submission**

For each top level community, or College in Makerere vernacular, a very simple academic submission system was instituted.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Submission\\_System](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Submission_System)

### **4.2. Default licence**

The default licence for submission was amended.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Copyright#SUNScholar\\_default\\_license](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Copyright#SUNScholar_default_license)

### **4.3. Custom index**

A “dc.type” search and browse index was created.

<http://wiki.lib.sun.ac.za/index.php/SUNScholar/Discovery>

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Browse\\_Indexes](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Browse_Indexes)

### **4.4. XMLUI news**

The XMLUI front page news file was updated and the local personnel were trained to do updates on an ad-hoc basis themselves, when required.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/XMLUI\\_Theme/M1/Page\\_Content#Customise\\_the\\_front\\_page\\_introduction](http://wiki.lib.sun.ac.za/index.php/SUNScholar/XMLUI_Theme/M1/Page_Content#Customise_the_front_page_introduction)

### **4.5. Google analytics**

Enabled the use of Google analytics with the MAK IR generic Google webmaster account.

<http://wiki.lib.sun.ac.za/index.php/SUNScholar/Google/Analytics>

Several other operational customisations were done in line with the normal installation of DSpace and those needed for the upgrade of DSpace to version 4.2.

<http://wiki.lib.sun.ac.za/index.php/SUNScholar/Customisation>

<http://wiki.lib.sun.ac.za/index.php/SUNScholar/Upgrading>

## 5. Digitisation

General discussions were held regarding the digitisation of cultural and heritage materials. It was stressed that the DSpace software was primarily written to be an open access research output archive and that some of the functionality required to be a cultural heritage archive may need to be added. However DSpace is more than capable of archiving the digital objects that are the result of cultural heritage digitisation, if proper capacity planning is put in place for the required disk space, for the production, primary and backup servers. See disaster recovery below.

A list of software that may be more suited to a cultural heritage archive can be viewed here:

[http://wiki.lib.sun.ac.za/index.php/List\\_of\\_Repository\\_Software](http://wiki.lib.sun.ac.za/index.php/List_of_Repository_Software).

## 6. Exclusions

The following were not part of the scope of the visit but should be considered for long term support.

### **6.1. Disaster Recovery**

It was assumed the University central IT was responsible for disaster recovery.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Disaster\\_Recovery](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Disaster_Recovery)

### **6.2. Policy**

It was assumed that an open access research self archiving policy would eventually be adopted and that a repository preservation plan would follow.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Guidelines/Step\\_1](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Guidelines/Step_1)

## **7. Recommendations**

In order to become self-supporting and looking toward the future, it is recommended that the following be instituted:

### **7.1. Test/development system**

Makerere University Library install and build a training/test system that is almost identical to the production system, to be used for future training and testing. This system will allow tests to be done in a safe development mode, and then when tests are completed, the changes can be copied to and safely activated on the production system.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Change\\_Management](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Change_Management)

### **7.2. Community of practice**

A community of practice for library repository operations and library repository systems be started in Kampala and regionally in Uganda. To this effect an impromptu meeting between the local Uganda linux user group and the library IT personnel was arranged. It is recommended that this collaboration be formalised.

<http://www.linux.or.ug>

<http://adlsn.org>

### **7.3. Journal publishing**

If Makerere University Library embarks upon a capacity building exercise for open scholarly publishing then it is recommended that the library start to publish academic journals using the OJS PKP open source software.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Capacity\\_Building](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Capacity_Building)

<http://wiki.lib.sun.ac.za/index.php/PKP>

### **7.4. Systems capacity**

In order to prepare for future open data and open educational systems it is recommended that the University acquire more internet bandwidth capacity, if possible, and also that a systems capacity planning exercise is done to ensure that there is central IT systems capacity to deal with these future projects.

<http://wiki.lib.sun.ac.za/index.php/OpenCampus>

### **7.5. IFLA-IT conference**

In August 2015, Stellenbosch University Library will host the IFLA-IT sub-conference. It is recommended that Library IT and those involved with Library IT at central IT, attend the conference.

<http://conference.ifla.org/ifla81/node/983>

## 8. Future Work

In order to effect future work, Mr Hilton Gibson has been granted remote system access by Mr Juma Katongole.

Below are details about items for possible future work:

### **8.1. Upgrade to Mirage2 theme**

Assist with enabling the Mirage2 theme on the development system to be built and then activating it on the production system.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/XMLUI\\_Theme](http://wiki.lib.sun.ac.za/index.php/SUNScholar/XMLUI_Theme)  
<http://makir.mak.ac.ug/?themepath=Mirage2/>

### **8.2. Enable other DSpace 4.2 features**

Assist with enabling other DSpace 4.2 features where required. One item that may be needed is secure connections.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Secure\\_Internet\\_Connections](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Secure_Internet_Connections)

### **8.3. Community/collection hierarchy management**

Assist library operations with community/collection hierarchies management.

[http://wiki.lib.sun.ac.za/index.php/SUNScholar/Community\\_Management](http://wiki.lib.sun.ac.za/index.php/SUNScholar/Community_Management)



