



<http://slb Spare.natlib.govt.nz:58081/gdl/app/home>  
userid=nluser  
password=nlg2008

[NL#351357]

## 1. Vision

National Libraries Global will allow users to:

- Visit the National Libraries Global homepage to gain immediate access to selected collection items;
- Exploit the rich metadata that national libraries can provide to implement access features including faceted search and advanced browse features;
- Provide metadata of their own, such as tags;
- Subscribe to feeds, giving them updates on new content in the system; and
- Make their own access systems and web 2.0 applications, or incorporate National Libraries Global into their own metasearch systems, using a set of published web services.

## 2. Background

National Libraries Global (NLG) is an initiative to showcase and provide seamless access to the digital collections held in national libraries around the world through a single interface.

The project promotes 'brand national libraries' through leveraging of their digital collections and the perception by the wider community that national libraries represent trust, authenticity, completeness and long-term access in the digital environment. The project will also develop a wider catchment of users for national library online collections among the global user community.

The goal of the project is to build the prototype of a harvesting and discovery service for digital objects held in national library collections to demonstrate the aggregation model for those collections and to determine the potential overhead and compliance costs for participating organisations.

Software development was broken down into three phases:

- Phase 1: Access Layer – This phase re-purposed the existing KRIS metadata database and harvest infrastructure for the NLG Project, and then built a web service access layer to provide metadata access and search services.  
Phase 1 is **COMPLETE**.
- Phase 2: Access Prototype —This phase built an access prototype based on the access layer, including several extensions to the harvest infrastructure.  
Phase 2 is **COMPLETE**.
- Phase 3: Going into production – If the participating libraries decide to turn the prototype into a live system, then a new project will be started to carry this out.  
Phase 3 is **STILL TO BE ACTIVATED**.

### 3. Action taken so far

In August 2007, the NLNZ and the National Library Board of Singapore (NLB) ran a successful proof-of-concept, bringing together objects in their digital collections for users to access through a single interface.

Following this success, it was decided to extend the proof of concept by broadening its scope and including data from other national libraries in the development of a more fully-featured prototype.

That prototype was developed using test data from National Library of Australia, Library & Archives Canada, NLB and NLNZ.



420,000 records (and growing) via OAI-PMH



5,800 records, via XML files



Library and Archives Canada  
Bibliothèque et Archives Canada

4,900 records, via XML file



Te Puna Mātauranga o Aotearoa  
68,000 records, via Timeframes database dump

National Libraries Global was showcased at IFLA 2008 in Quebec at both the CDNL meeting and the meeting of the ‘Small countries - smart ideas’ group, a loose association of smaller national libraries with a desire to act in a more agile, flexible manner in the digital environment in accordance with their nature as smaller, more financially constrained institutions.

Conversations were held with World Digital Library staff at the Library of Congress in November 2008 and in June 2009. It was clear from these discussions that the WDL project recognised the complementary nature of the NLG project and offers have been made to incorporate WDL and American Memory material into National Libraries Global as appropriate.

### 4. Leveraging KRIS and NLG

Building on the learning from the KRIS and National Libraries Global projects the Library has developed a harvester for its Digital New Zealand project (<http://www.digitalnz.org>).

In Digital New Zealand both the National Libraries Global harvester and the new harvester run side-by-side to populate a shared metadata database from numerous different data sources.

The conceptualisation and research activity undertaken in KRIS and National Libraries Global allowed for re-use in DNZ (in particular the harvester and search engine technologies and the metadata database) and contributed substantially to the DNZ team's ability to launch on time in late 2008.

## 5. Future development

If the project is continued development would primarily be in two areas:

- **Web interface.** While the current web interface demonstrates several modern features (e.g. tagging, faceted browsing, showcases) it is not fully realised and has not been user tested or reviewed by a web designer for usability, accessibility or standards compliance.
- **Harvester and ingest layer.** The current harvester is extremely flexible, and has many features that cannot be found elsewhere, but is complex to modify and configure, and its implementation in object-oriented PHP is incompatible with the Library's technology stack, making it difficult to maintain and improve in the longer term.

It is expected that the harvester developed for DNZ (see above), including OAI-PMH harvesting, would be retrofitted into NLG, exemplifying the process of iterative development benefitting both projects.

## 6. Metadata formats, guidelines, and costs

As part of the prototype project a set of metadata guidelines was proposed for participants. This provided an indication of the compliance costs for participating organisations. The guidelines also specified how contributed metadata should be encoded and how the harvested metadata will be processed.

The service harvested metadata via OAI-PMH, and encouraged two tiers of participation:

1. Simple metadata, based on unqualified Dublin Core (as used in OAI-PMH harvesting).
2. Advanced metadata, with additional fields to support advanced access (eg ability to specify addresses of a number of object types such as thumbnails).

The prototype imported metadata using OAI-PMH (National Library of Australia) and metadata using XML files (National Library of New Zealand, Library and Archives Canada, National Library Board of Singapore).

## 7. Translating the web interface

The web interface is a prototype, and incomplete, and has therefore not been translated into other languages. However, the web interface is extremely flexible and can be extended to support multilingual interfaces.

## 8. Technical details

The National Libraries Global prototype has a simple architecture, illustrated below.



Metadata is harvested from participating institutions via OAI-PMH. The harvester stores the metadata, in a database, where it is indexed to support search.

A web service access layer provides an interface between the metadata database and applications like the NLG prototype that provide end-user access to the combined collections.

## 9. Next Steps

The National Libraries Global prototype has been successful in showing that there is a technologically lightweight, low-compliance-cost model for surfacing the online collections of national libraries.

Substantial interest has been shown in the potential of the prototype (see Appendix Two) including acknowledgment from the World Digital Library project that National Libraries Global is complementary to their work plan.

There is a clear need for a shared resource base for all national libraries, if there is acceptance of the idea of 'brand national libraries.' National Libraries Global can provide a complementary service to the World Digital Library and Europeana while also providing a base service for those national libraries that do not currently fall within the ambit of similar aggregation services.

However, it has been difficult for other national libraries to commit to participation in NLG without some assurance that it will actually go ahead.

So we are in a situation where NLNZ can't assign more resources without commitment from potential partners, and potential partners appear unable to commit to NLG without commitment from NLNZ (or CDNL/ICADS) that the service will continue beyond proof-of-concept.

A possible resolution of this situation will be proposed to the ICADS Advisory Board and the annual meeting of CDNL in Milan, in August 2009.

## **APPENDIX ONE – NATIONAL LIBRARIES GLOBAL – INDICATIVE DEVELOPMENT AND SUPPORT REQUIREMENTS**

### **1. Potential of National Libraries Global**

The NLG prototype has been successful in showing that there is a technologically lightweight, low-compliance-cost model for surfacing the online collections of national libraries. Some interest has been shown in the potential of the prototype, but it is difficult to commit to participation in NLG without some assurance that it will actually go ahead.

The remainder of this section canvasses the requirements for developing and supporting a production ready National Libraries Global service.

#### **1.1. Development of the prototype**

Continuing the project would involve developing the project into a production system with business-as-usual support.

##### **1.1.1. Development:**

The new system would most likely be developed with the assistance of external vendors. The following development tasks would need to be addressed:

- **Harvester:** Re-import the updated harvester from DigitalNZ including OAI-PMH harvesting. This would be retrofitted into NLG, exemplifying the process of iterative development benefiting both projects. This work may require some re-engineering of the metadata database and API, but would be relatively modest and would offer significant benefits in terms of harvest capabilities.
- **Web interface.** While the current web interface demonstrates several modern features (e.g. tagging, faceted browsing, showcases) it is not fully realised and has not been user tested or reviewed by a web designer for usability, accessibility or standards compliance. Further, translation support is not realised. The web interface could either be tidied up and extended to support multilingual interfaces, or completely redesigned by an experienced web designer.
- **Hardware.** The current prototype is running on a National Library of New Zealand test server. It does not take up a lot of space currently, though a fully realized system could have more significant database and bandwidth requirements. A suitable hardware/hosting arrangement would have to be found.

It is not possible to properly cost this work without agreed interface although it is estimated that it might be in the vicinity of NZ\$50-60,000.

##### **1.1.2. Business as usual support**

It is expected that a National Libraries Global service would require some level of business-as-usual support. The following are indicative roles only and an NLG service may require some or all of these roles in either full or part time capacity:

- **Service Manager:** Handle customer enquiries.
- **Content manager:** Liaison with potential partners at a business level, letting them know the requirements and benefits of participation in the website, etc.
- **Harvest operator:** A technician who sets up harvest profiles, schedules harvests, and ensures the harvester is operating correctly.
- **Technical support:** solve technical problems, such as bugs in the harvester, or adding new harvester features.

- System administration: Keeping the harvester hardware, network, operating system, etc running.

This analysis excludes any sort of marketing or promotion of the service (this could be built into the Service or Content manager roles).

## APPENDIX TWO – NATIONAL LIBRARIES GLOBAL – CONTACT REGISTER

### Listing of Contacts:

Date/Time of Contact	Contact (name / email address)	Email Subject	Details	Resulting Action
28/05/2008 3:55 pm	Debbie Campbell <dcampbel@nla.gov.au>	RE: Images Canada and Picture Australia	<p>Our Corporate Group has now discussed this proposal. It has asked me to convey to you that the NLA will not be able to contribute to the project activity at this time.</p> <p>However, you are welcome to harvest image records from Picture Australia using the OAI base URL of <a href="http://oai.pictureaustralia.org:8123/oai/pa_oai?verb=ListRecords&amp;metadataPrefix=pa">http://oai.pictureaustralia.org:8123/oai/pa_oai?verb=ListRecords&amp;metadataPrefix=pa</a>. Could you advise when this will occur, as it will have an impact on both our servers and our statistics.</p> <p>There are now more than 1.4 million image records in the service - could you also confirm that you will only harvest them once, in a 'project' mode?</p>	Permission to harvest via OAI - once
9/07/08 06:45	"Smith Michael" <Michael.Smith@lac-bac.gc.ca>	RE: RE: Images Canada	We would be happy to participate in this exciting initiative. Let me know exactly what sort of data we should provide.	Wish to participate  Metadata provided
25/07/08 23:02	Haliza JAILANI < <a href="mailto:haliza@nlb.gov.sg">haliza@nlb.gov.sg</a> >	Fwd: NLB-AP	<p>Raju has requested that I send you our DC Application Profile, that we use for describing NLB digital objects. We called it the NLB-AP. Pls find attached the word document.</p> <p>(See attached file: NLB_Library Application Profile_290508.doc)</p> <p>I am also sending you our set of DCXML records in NLB-AP, about 6K plus. They are available on this ftp folder //172.30.8.217/apps/ftpcontent/NLBAP.</p>	Metadata provided
19/08/2008 8:21 am	"Angela Monteiro" <a href="mailto:angelab@bn.br">angelab@bn.br</a>  Angela Monteiro Bettencourt Fundação Biblioteca Nacional – Brasil	National Libraries Global - Brazilian participation	<p>I am responsible for the Brazilian National Digital Library. <a href="http://www.bn.br/bndigital">http://www.bn.br/bndigital</a>.</p> <p>We are very interested to participate on the National Libraries Global as a partner. We have about 8 thousand digital items and we would like to know which are the requirements to participate on this prototype.</p>	Wish to participate

Date/Time of Contact	Contact (name / email address)	Email Subject	Details	Resulting Action
3/09/2008 10:22 pm	<p>Muñoz de Solano y Palacios, Bárbara Guiomar &lt;barbara.munoz@bne.es&gt;</p> <p>Bárbara Muñoz de Solano y Palacios Jefe Servicio Biblioteca Digital</p> <p>Biblioteca Nacional Paseo de Recoletos 20 28071 Madrid * 91 516 89 58 (ext. 558) * <a href="mailto:barbara.munoz@bne.es">barbara.munoz@bne.es</a></p>	<p>National Libraries Goal – desire to work with NLNZ on a Spanish language implementation of NLG – all 23 Spanish speaking national libraries.</p> <p>This has since been shown to be not viable.</p> <p>Possible that this will be resurrected in an alternative form by BNE in 2009.</p>	<p>On behalf of Belén Llera, Technical Director of The European Library, we would like to join the National Libraries Global prototype. After IFLA Conferences in August 2008, the Spanish National Library considers the National Libraries Global prototype project very attractive.</p> <p>The idea of combine national library collection digital objects will allow users to access, and create content from participating national libraries around the world. In this sense, Spanish National Library has already started many digitization projects (10.000 titles already digitized), so it is able to contribute to the development of the October prototype scheduled with many Spanish cultural heritage digital documents: <a href="http://bibliotecadigitalhispanica.bne.es/R/">http://bibliotecadigitalhispanica.bne.es/R/</a></p>	Wish to participate
09/05/08 11:47 PM	<p><a href="mailto:Genevieve.Clavel@nb.admn.ch">Genevieve.Clavel@nb.admn.ch</a></p> <p>National Library of Switzerland</p>	RE: National Libraries Global	<p>Overall, I like the layout and the ease of use, the clouds and the breakdown when a set is retrieved, the popular subjects as well. I have enjoyed moving around - congratulations!</p> <p>But of course I will now highlight the areas in which I had problems - as requested, so don't measure my appreciation by the short paragraph above and the longer one below!</p>	For Info
	Bohdana Stoklasova, National Library of the Czech Republic	National Libraries Global	There have been several discussions regarding NLG with the Czech Republic. They are strongly supportive of the concept but would find it difficult to participate at this stage due to perceived conflicts with participation in Europeana, although Bohdana is still very interested in initiating Czech Republic participation in NLG as soon as possible.	
08/12/08	Michael Chertok & Deborah Jacobs Bill & Melinda Gates Foundation	National Libraries Global	<p>Deborah Jacobs suggested that I write you. As you may know, Deborah recently joined us as Deputy Director of our Global Libraries initiative at the Gates Foundation.</p> <p>When Penny Carnaby spoke at the Bridging Worlds Conference I attended in October, she mentioned that she was involved with discussions with other National Librarians about a National Libraries Global Initiative.</p> <p>Deborah and I would be interested to learn anything you and Penny may be able share about these discussions. We think it may be a helpful connection to make for some of the National Libraries with whom we are working.</p>	

Date/Time of Contact	Contact (name / email address)	Email Subject	Details	Resulting Action
08/02/09	Sue Sutherland to Michael Chertok (Gates Foundation)	National Libraries Global	'I would look forward to hearing from you if you think the Gates Foundation is interested in supporting the initiative - particularly if that involved some financial contribution!'	
12/11/08	Carline Brazier, British Library	ICADS session, IFLA 2009	Proposal from Italian government for full day workshop on digital library themes. Potential input included NLG –	
27/01/09	Ingeborg Verheul, IFLA Convergence Secretariat		'Under the umbrella of the Conference of Directors of National Libraries, the National Library of New Zealand recently developed a prototype for the National Libraries Global project, which serves the same purpose, but focuses at national library collections.'	