Adding metadata—and using it

Course material prepared by
Greenstone Digital Library Project
University of Waikato, New Zealand

Agenda
- Overview of collection building
- Metadata sets
- Adding metadata in GLI (+demo)
- GLI tricks
- Review: Searching and browsing
- General Options
- Plugins
- Searching – indexes
- Browsing – classifiers
- Simple formatting
- Form search
- Partitioning indexes
- PHIND phrase index
- CDS/ISIS
- GEMS: metadata set editing
**Collection building process**

- **Input:** Set of documents + metadata
  - Various formats, e.g. Word, PDF, HTML, images ...

- **Import:** Conversion to common internal (XML) format
  - Uses third party tools

- **Build:** Create indexes, browsing structures, metadata database

- **Output:** Greenstone collection

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**Greenstone structure**

In the diagram:

- **Document conversion**
- **Internal format**
  - **Index**
  - **Classify**
  - Full text index
  - Database
  - Associated files

**Importing**

**Building**
Greenstone structure

- Document
- Metadata
- Both

Extract metadata

- XML
- Metadata included
- Section-level
- Links to external files

- Plain text, PDF, PostScript, source code, image formats, ...
- XML metadata format, BibTex, Refer, OAI, USMARC, BBC, ...
- HTML, WORD, Email, TIFF images, Gutenberg text, ...

- Identify language, extract acronyms, image thumbnails ...
- Traverse directory structure, split files, ZIP archives, ...

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Metadata Sets

- Standard metadata sets
  - Librarian added
  - Good quality, but high cost
  - Many types
    - Dublin Core (dc)
    - Development Library Subset (dls)
    - New Zealand Government Locator Service (nzgls)

- Greenstone extracted metadata (ex)
  - Automatically extracted
  - Non-editable
  - May be poor quality, but cheap

Dublin Core metadata

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Tag</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>dc.Title</td>
<td>Name given to the resource</td>
</tr>
<tr>
<td>Creator</td>
<td>dc.Creator</td>
<td>Entity primarily responsible for making the content of the resource</td>
</tr>
<tr>
<td>Subject and keywords</td>
<td>dc.Subject</td>
<td>Topic of the content of the resource</td>
</tr>
<tr>
<td>Description</td>
<td>dc.Description</td>
<td>Account of the content of the resource</td>
</tr>
<tr>
<td>Publisher</td>
<td>dc.Publisher</td>
<td>Entity responsible for making the resource available</td>
</tr>
<tr>
<td>Contributor</td>
<td>dc.Contributor</td>
<td>Entity responsible for making contributions to the content of the resource</td>
</tr>
<tr>
<td>Date</td>
<td>dc.Date</td>
<td>Date associated with an event in the life cycle of the resource</td>
</tr>
<tr>
<td>Resource type</td>
<td>dc.Type</td>
<td>Nature or genre of the content of the resource</td>
</tr>
<tr>
<td>Format</td>
<td>dc.Format</td>
<td>Physical or digital manifestation of the resource</td>
</tr>
<tr>
<td>Resource identifier</td>
<td>dc.Identifier</td>
<td>Unambiguous reference to the resource within a given context: this is the object identifier or OID</td>
</tr>
<tr>
<td>Source</td>
<td>dc.Source</td>
<td>Reference to a resource from which the present resource is derived</td>
</tr>
<tr>
<td>Language</td>
<td>dc.Language</td>
<td>Language of the intellectual content of the resource</td>
</tr>
<tr>
<td>Relation</td>
<td>dc.Relation</td>
<td>Reference to a related resource</td>
</tr>
<tr>
<td>Coverage</td>
<td>dc.Coverage</td>
<td>Extent or scope of the content of the resource</td>
</tr>
<tr>
<td>Rights management</td>
<td>dc.Rights</td>
<td>Information about rights held in and over the resource</td>
</tr>
</tbody>
</table>
DLS metadata

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>dls.Title</td>
<td>Title</td>
</tr>
<tr>
<td>dls.Keyword</td>
<td>Keyword (originally “How To”)</td>
</tr>
<tr>
<td>dls.Organization</td>
<td>Organization that produced the document</td>
</tr>
<tr>
<td>dls.Language</td>
<td>Language of the document</td>
</tr>
<tr>
<td>dls.Subject and Keywords</td>
<td>Hierarchical subject metadata</td>
</tr>
<tr>
<td>dls.AZList</td>
<td>A-Z range into which this document’s title falls</td>
</tr>
</tbody>
</table>

Example of DLS metadata
Example of DLS metadata
Extracted metadata

<table>
<thead>
<tr>
<th>Metadata</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ex.Title</td>
<td>Title extracted from HTML, Word, PDF</td>
</tr>
<tr>
<td>ex.Source</td>
<td>Name of source file, e.g. Apache.html</td>
</tr>
<tr>
<td>ex.Language</td>
<td>Language of document, e.g. en, sp, fr</td>
</tr>
<tr>
<td>ex.Encoding</td>
<td>Encoding of document, e.g. iso_8859_1</td>
</tr>
<tr>
<td>ex.Acronym</td>
<td>Acronyms that appear in the document</td>
</tr>
</tbody>
</table>

Example of extracted metadata
Example of extracted metadata

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- CDS/ISIS
- GEMS: metadata set editing
GLI: Adding metadata

- Enrich pane
- Folder level or document level
- Specified metadata set
- Can view extracted metadata but not edit
GLI: adding metadata

Extracted Metadata
Greenstone Librarian Interface demo: adding metadata

Hierarchical Metadata

- Metadata is often hierarchical:

- How is this done in Greenstone?
Hierarchical Metadata

- In the GLI’s Enrich pane, use the pipe character (|) to separate the levels

- Preview the hierarchy in the value tree

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GLI Tricks

- General Preferences

- File Filtering
GLI Tricks

- Create file folder shortcut
GLI Tricks

- Viewing files: Double-clicking

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Hierarchical document model

- Metadata specified at any level

Title metadata

Searching and browsing

- Searching
- Metadata-based browsing

Subject, Title, Publisher, "HowTo"

Dublin Core, ad hoc
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Multiple search indexes

- Text
- Metadata

Collection-dependent

- Metadata
Multilingual searching

Search for documents which contain some of the words

Search page - Microsoft Internet Explorer

Search
titles a-z
language
about
search
titles a-z
language
phrases
search
titles a-z
authors a-z

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Browsing using classifiers

AZList classifier (Title metadata)

AZCompactList classifier (Creator metadata)
AZCompactList classifier (Creator metadata)

GenericList classifier (Title metadata)
DateList classifier (Date metadata)

Hierarchy classifier (Subject metadata)
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CDS/ISIS
GEMS: metadata set editing
General Options

The design section of the Librarian interface allows you to control many aspects of your collection’s appearance. The design is split up into several sections. This section contains general options and settings. To choose a different section, click on its name in the list to the left.

1. Creator’s email: greenstone@cs.waikato.ac.nz
2. Maintainer’s email: greenstone@cs.waikato.ac.nz
3. Collection title: Greenstone demo
4. Collection holder: demo
5. URL to ‘about’ page image: /images/demo/about.jpg
6. URL to ‘home’ page image: /images/demo/home.jpg

This collection should be publicly accessible.

Collection description:
This is a demonstration collection for the Greenstone digital library software. It contains a small subset (13 documents) of the Humanities and Development Library.

Help text generated automatically

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**Plugins**

- Document Plugins
  - Currently Assigned Plugins
    - plugin IBMPlg plug-in:HTMLPlug - description_tags

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Plugins

Document Plugins
- plugin ZIPPlug
- plugin GAAPlug
- plugin HTMLPlug
- plugin SIRPlug
- plugin ExcelPlug
- plugin ImagePlug
- plugin TextPlug
- plugin NULLPlug

Select plugin to add: EBDTextPlug

Plugin Options

Please configure the arguments for HTMLPlug.
Plugins

Used by collection-building software to accomplish format-specific parsing of source documents

Plugin pipeline: files are passed to each plugin in turn until one is found that can process it

- GAPlug processes doc.xml files generated during import
- ArcPlug processes filelist in archives.inf
- RecPlug recursively through a directory structure

TEXTPlug
HTMLPlug
EMAILPlug
WORDPlug
RTFPlug
PDFPlug
PSPlug
ImagePlug
PPTPlug
ISISPlug
TCCPlug ...

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Search Indexes

Index Selection
Here you choose what searchable indexes the collection will have.
To add a new index, select what material is to be indexed, choose the level of the index, and click 'Add Index'.
To remove an index, select it from the assigned indexes list and click 'Remove Index'.

Assigned Indexes

- section: "sections"
- chapter: "chapters"
- document: "documents"
- text: "text"
- "entire documents"

Index Name:
section titles
ex:COMPAG
ex:Source
ex:Title
ex:URL
Text

At the level:
section

Add Index
Replace Index
Remove Index

name on menu
"text", or any metadata
document, section, or paragraph

Greenstone demo
HOME HELP PREFERENCES
about

Search for:

About this collection
This is a demonstration collection for the Greenstone digital library software. It contains a small subset (11 documents) of the Humanitarian Development Libraries.

How to find information in the Greenstone demo collection
There are 5 ways to find information in this collection:
- search for particular words
- access publications by subject
- access publications by title
- access publications by organization
- access publications by "how to" listing

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Browsing Classifiers
AZList classifier (Title) for the demo collection

classify AZList -metadata Title

AZCompactList classifier (Creator)

classify AZCompactList -metadata dc.Creator -mingroup 1
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**DateList classifier**

```plaintext
classify DateList -metadata Date
```

**etc/org.txt**

```plaintext
identifier (matches Organization metadata value)
position in the hierarchy that the browser implements
title to be displayed in hierarchy browser
```

```plaintext
search subjects titles a–z organization how to
classify Hierarchy -hfile org.txt -metadata Organization -sort Title
```

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Hierarchy classifier (Organization)

classify Hierarchy -hfile org.txt -metadata Organization -sort Title

classify Hierarchy -hfile org.txt -metadata Organization -sort Title
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Format Features
Format Statements

- **VList** – vertical lists: search, classifiers, document table of contents
- **HList** – horizontal lists: classifiers
- **SearchVList, CL1VList** – individual vertical lists
- **DocumentText** – document display

Search VList
Alcoholism prevention and cure

by Courtois J, Pierre B

Ecole de la Promotion de la Santé, Brussels, Belgium

copyright No. 124 in the Republic of Zaire - 1981
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Search Types

- "Enable search types" – allows fielded searching
- MGPP/Lucene
- Form/plain – can switch on preferences
- Different index specification
Default Search Indexes

Index Selection
Here you choose what searchable indexes the collection will have.
To add a new index, select what material is to be indexed, choose the level of the index, and click 'Add Index'.
To remove an index, select it from the assigned indexes list and click 'Remove Index'.
To set the default index, select it from the assigned indexes list and click 'Set Default Index'.

Search Types

Search Type Selection & Ordering
Defining the search types is an advanced feature only available when enabled (by checking the "Enable Advanced Searches" box). Once enabled, further controls for selecting and changing the order of search types become available. Select a search type from the combobox and 'Add Search Type'. If enabled, to add the search type. Select an existing search type from the list, and use 'Move Up' and 'Move Down' to change the order, or disable Advanced Searches.

Currently Assigned Search Types

Search Types: Form
Form Search Indexes: Indexes

Design Sections:
- General
- Document Plugins
- Search Types
- Source Indexes
- Partition Indexes
- Cross-Collection Search
- Browsing Classifiers
- Format Features
- Translate Text
- Metadata Sets

Index And Level Selection

Here you choose what searchable indexes the collection will have. To add a new index, enter a unique name for the index, select material/metadata to be indexed, and click 'Add Index'. If you wish to add all of the available sources so as to have indexes built on them, then click 'Add All' (the name for each index will default to be the name of the source). Note that this is subtly different from adding the

Manage Indexes | Manage Levels

Currently Assigned Indexes:
- text "text"
- ex.Title "Title"

Index Name:

Index Source: allfields

Add Index
Add All

Replace Index
Remove Index

Form Search Indexes: Levels

Design Sections:
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Manage Indexes | Manage Levels

Currently Assigned Levels:
document "document"

section "section"

Level Name: section

Level Source: section

Add Level
Remove Level

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Plain search

Simple form search
Advanced form search

- **Fielded searching**
  
  [terms]:Field
  
  Specifies searching within a particular field

- **Term modifiers**

  #icus /x
  
  Stemming, casefolding and weighting

- **Fields**

  TI  title
  
  CR  creator
  
  SU  subject
  
  TX  text
  
  ...
Advanced plain search

- Regular vs large query box
- Boolean operators
  - & AND
  - | OR
  - ! NOT
- Phrase searching ("...")
- Case folding
- Stemming (word endings)
- Search history
- Number of returned results

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Partition Indexes

- Searching within a single collection
- The indexes are split based on subcollection definitions
  - E.g. language, file types, metadata
- Browsing classifiers contain all the documents
- Library Systems Specialist mode
Partition Indexes

Use this panel to refine index creation:
1) Define subcollection filters, which screen the collection documents based on the specified metadata values. Once defined, you can then generate partitions on any previously specified index, based on one or more of these filters.
2) Generate index partitions based on language. This filters the collection documents so that only those in the chosen language are included.

Language partitions
Language metadata

Language partitions
Document type partitions

This collection is an electronic version of the Hamilton Public Library Youth Oral History Project. In 1995 the Hamilton Public Library interviewed local Hamiltonians aged between 50 and 75 years old about their lives as young adults in the 1930s, 40s, and 50s. Interviews were recorded and abstracted. Any photos brought along to an interview were laser copied and added to that person’s abstract.

How to find Information in the Hamilton Public Library Youth Oral History Collection collection

There are 3 ways to find information in this collection.
Collection documents

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Collection documents
Subcollection filters

Partition Indexes

Use this panel to refine index creation:
1. Define subcollection filters, which screen the collection documents based on the specified metadata values. Once defined, you can then generate partitions on any previously specified index, based on one or more of these filters.
2. Generate index partitions based on language. This filters the collection documents so that only those in the chosen language are included.

Define Filters - Assign Partitions - Assign Languages

Subcollection filter name: interviews
Document attribute to match against: Filename
Regular expression to match with: thumb
What do we do with files that match? Include

Flags to set when matching:
Add Filter - Replace Filter - Remove Filter
Assign partitions

Partition Indexes
Use this panel to refine index creation.
1) Define subcollection filters, which screen the collection documents based on the specified metadata values. Once defined, you can then generate partitions on any previously specified index, based on one or more of these filters.
2) Generate index partitions based on language. This filters the collection documents so that only documents in the chosen language are included.

Define Filters:
Assign Partitions Assign Languages
Assigned Subcollection Partitions:
photos "photos"
interviews "interviews"
interviews.photos "all documents" (Default Partition)

Partition Name:
all documents
subcollection interviews "filename/thumb/
subcollection photos "filename/thumb/

Build partition on:

Add Partition Replace Partition Remove Partition

Document type partitions

About this collection
This collection is an electronic version of the Hamilton Public Library Youth Oral History Project.
In 1995 the Hamilton Public Library interviewed local Hamilton’s aged between 50 and 75 year olds about their lives as young adults in the 1930s, 40s and 50s. Interviews were recorded and transcribed. Any photos brought along to an interview were laser copied and added to that persons abstract.

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Phind Phrase Index

[Image of Phind Phrase Index interface]

Classifier Selection & Configuration

- Use this view to add, configure or remove classifiers in your collection. To add a classifier, choose it from the combobox and click 'Add Classifier'.
- To remove a classifier, choose it from the list of assigned classifiers and click 'Remove Classifier'.
- To configure a classifier, choose it from the list of assigned classifiers, and click 'Configure Classifier'.

Currently Assigned Classifiers

- AllList - metadata ext.Title
- ClassifyAllsearch - metadata ext.Category
- ClassifyPhind

Editing Controls

- Select classifier to add: AllList
- Add Classifier
- Configure Classifier
- Remove Classifier

Move Up

Move Down
PHIND

Hierarchical index of phrases

- What’s in this collection?
- Is it any good?
- What coverage for topic X?
- My query returned too much/little, what now?
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Frequently Asked Questions (FAQs) about Desert Locusts

- What is the difference between locusts and grasshoppers?
- What is a Desert Locust?
- Which countries are affected by the Desert Locusts?
- Can Desert Locusts go anywhere in the world?
- How does a Desert Locust live?
- How many eggs does a Desert Locust female produce?
- How far and how fast can Desert Locusts migrate?
- How big are swarms and how many locusts are there in a swarm?
- What percentage of the Desert Locust's exoskeleton is chitin?
- How much food can a Desert Locust eat?
- What is the relationship between locusts and ecosystems?
- Why do locusts migrate? What is the behavior?
- Are there other important species of locusts?
- Can locusts hurt humans?
- How can locusts be controlled?
- Who carries out locust control operations?
- Are there any non-chemical ways to kill locusts?
- Can locusts be detected by satellites?
- Why are Desert Locusts so difficult to control?
- Do people really eat locusts?
- What is a Desert Locust composed of?
INFOPECHE a été créé en tant que Projet Régional lancé par l'Organisation des Nations Unies pour l'Agromarche (FAO). Il vise à améliorer la production alimentaire et la commercialisation des produits de la mer en Afrique. Le projet vise à améliorer les capacités des pays à produire, à conserver, à conditionner et à commercialiser des produits de la mer pour un plus grand profit et un plus grand nombre de personnes.

En 1991, les pays membres ont approuvé l'accord de l'Organisation pour la Coopération pour la Commercialisation des Produits d'Animaux et de la Pêche (INFOPECHE).

Membres d'INFOPECHE
Les membres de l'Association internationale d'INFOPECHE sont les Pashm, les pays de la zone principale, tels que la Côte d'Ivoire, la Guinée, la Libye, le Maroc, la Mauritanie, la Sénégal, le Tchad et le Cameroun. Ils ont établi un centre de coordination pour la commercialisation des produits d'Animaux et de la Pêche dans les pays membres. Le centre de coordination est situé à Abidjan, au Côte d'Ivoire.
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CDS/ISIS

- Bibliography collections are typically fairly complex:
  - Form searching
  - Customised query result and browse lists
  - Customised document display

- Let’s work through creating a simple collection using a small CDS/ISIS database describing a set of film slides
  (More information in the “Bibliography collection” and “CDS/ISIS” documented example collections)
Add the CDS/ISIS files to a new collection

After building, let’s view the collection:
- No metadata searching is available:
- The titles classifier is completely empty!

More problems:
- The filenames classifier is useless!
- The document display isn’t very pretty:
CDS/ISIS: Metadata searching

- To enable form searching, go to the “Search Types” area in the GLI’s Design pane
  - Tick “Enable Advanced Searches” on
  - Add the “form” search type, and remove “plain”

CDS/ISIS: Metadata Searching

- Add metadata indexes in the “Search Indexes” part of the GLI’s Design pane
  - Add indexes for Photographer and Notes metadata
  - Remove the useless Source and Title indexes
CDS/ISIS: Better browsing

- Remove the existing (useless) classifiers for Title and Source metadata, and add a new one for Photographer.

CDS/ISIS: Better browsing

- Change the VList format statement to display the Photographer and Notes metadata.
**CDS/ISIS: Document display**

- Next, let’s change the DocumentText format statement to show the Photographer and Notes metadata:
  
  ```html
  <center><table width=_pagewidth_><tr><td>Photographer: [ex. Photographer^all]</td></tr><tr><td>Notes: [ex. Notes^all]</td></tr></table></center>

- Then, let’s remove those annoying “Detach” and “Highlight” buttons by setting DocumentButtons to empty

- Lastly, clear DocumentHeading to remove the “untitled” at the top of the document

**CDS/ISIS: Finished!**

- Metadata searching now available:

  ![Metadata Searching](image)

  ![Better Browsing Facilities](image)

- Better browsing facilities:
CDS/ISIS: Finished!

- Document display improved:

![Image](image1.png)

- What could still be improved?
  - More metadata indexes, classifiers
  - Display all fields in the document display
  - Nice images for classifiers
  - ...

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Greenstone Editor for Metadata Sets - GEMS

- What can GEMS do?
  - Create a new metadata set
  - Add metadata elements to an existing set
  - Define and edit metadata attributes
  - Inherit from an existing metadata set
  - Import an existing metadata set
  - Sets can be used in GLI

GEMS Interface
GEMS Interface

Adding a New Metadata Set
Adding Metadata Attribute

Adding Metadata Element
Using an existing metadata set

- Using a pre-defined metadata set
  - Must comply with Greenstone metadata XML file format
    - Write a script to convert?
  - Copy to /gsdl/gli/metadata directory