

OCLC Institute Symposium
Growing the Digital Library



Building Multimedia Repositories for the Future

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My Perspective

- Historian
- H-Net: Humanities and Social Sciences OnLine
- MATRIX: The Center for Humane Arts, Letters, and Social Sciences Online
- Humanities technology

Institution Context: *MATRIX*

- Research Center in College of Arts and Letters
- Mission: Research and application of networked, digital technologies to the arts, humanities and social sciences

MATRIX: Scale

- Staffing:
 - Fourteen full time employees
 - Director, two associate directors
 - Seven academic specialists (research and outreach)
 - Systems administrator/programmer
 - Web designer/graphic artist
 - Administrative assistant
 - Clerk/receptionist
 - Graduate and undergraduate students from across the university (humanities, social sciences, computer science, audiologist)

MATRIX: Funding

- **Over \$8 million in outside grants in last six years**
- **Wide Range of Funding Agencies**
 - **NEH, NSF**
 - **State Department, USAID**
 - **Department of Education**
 - **Michigan Department of Education**
 - **Michigan Council for the Arts and Cultural Affairs**
 - **Mellon Foundation, Ford Foundation**

Across the University Mission

- Research: Basic and applied
- Education: University, k-12, training
- Outreach: Public, international
- Publication: Pioneering new forms

Research

- Basic R & D: New tools, new approaches
(i.e. Working with digital audio)
- Application and Evaluation
(i.e. Scholarly networking, IT for development)
- Reflection, Critique
(i.e. Educational uses of the Internet, distributed cultural resources)

Education

- Graduate program in humanities technology
- IT training for development
- K-12 Teacher Training
- Curriculum development
 - Civics Online
 - Exploring Africa, Exploring Latin America
 - American Voices
 - Michigan Folklife

Outreach: Network Building and On-line Communities

■ H-Net

- 148 scholarly discussion networks

- 500+ editors

- 100,000+ members

- H-Net Reviews

- Coming: e-print server, online journals, image database,

■ Center for Great Lakes Culture/MichiganCultureNet

■ Michigan Writers Network

Outreach: IT for Development and Democracy

■ African Internet Collaborations

- South African National Cultural Heritage Technology and Training Project
- Internet for Women's Democratic Organizing
- Community development/community empowerment in South Africa
- USAID DOT-COM Initiative: University of Mali

Publications

- H-Net Reviews
- Online journals
- E-print server

The Faculty/Project Model of Digital Humanities

- Project-by-Project Development
 - Responding to individualized faculty vision
 - Building complex objects that combine resources
- HTML coding/commercial software/custom scripting
- Dead-end
 - Too expensive
 - Stand-alone, not interoperable
 - Unable to maintain and preserve

Time to Move Beyond the Project

Approach: Designing Digital Repositories

- To meet the preservation and access responsibilities of libraries and archives
- To meet the complex pedagogical and publishing needs of faculty
- To take full advantage of networked digital media

Building Digital Repositories

- Need to plan for long-term preservation and access from the start
- Must design interoperable, distributive systems
- Design for multimedia from the outset
- Use and develop national best practices
- Minimize labor costs

MATRIX Digital Repository:

First Iteration

- Based on modified OAIS model to facilitate distributive partnerships
- Designed around METS: Metadata encoding and transmission standards
 - Xml ready
 - Built with php/mysql
- Open source software: linux/apache/mysql/php
- Hardware: 1 terabyte of spinning disk/tape backup/real audio server/webserver

Open Archive Information System Reference Model (OAIS)

- Allows OAIS compliant partners to exchange metadata and digital objects in predetermined fashion
- Allows for integrated searching across multiple repositories

Metadata Encoding and Transmission Standard (METS)

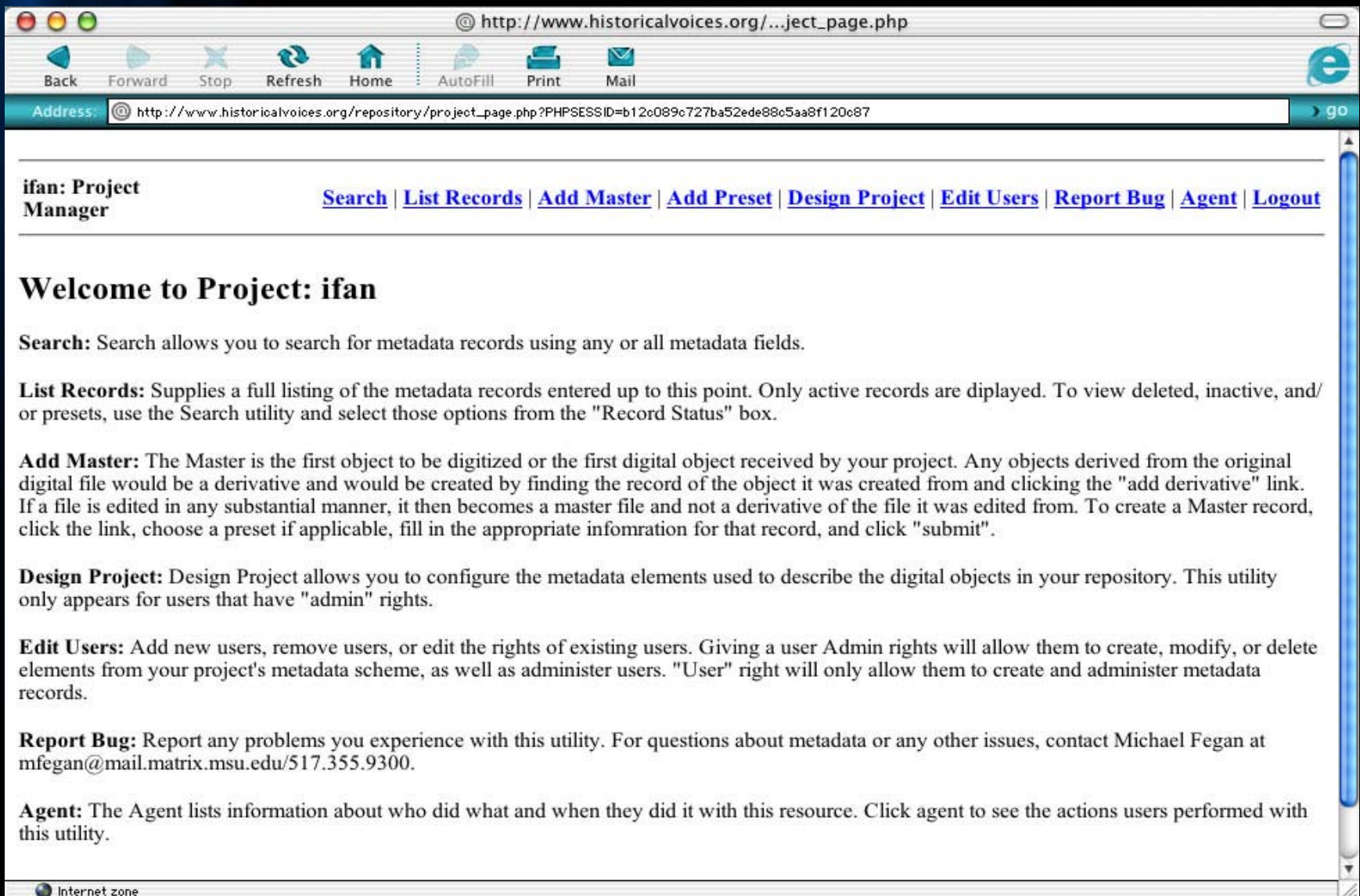
- Standardized by extremely flexible metadata schema
- “Bucket” approach to structural, descriptive, and administrative metadata
- Designed to encompass full range of repository needs
- Positioned to be a tool for exchange of metadata and digital objects

MATRIX Digital Repository:

PHP/MYSQL Implementation of METS

- Interoperability through a single database solution
- Schematized database design allowing for dynamic project creation
- Modular approach to delivery applications
- Facilitates creation of complex objects on-line
- Full flexibility searching

MATRIX Modular Project Design



The screenshot shows a web browser window with the address bar containing the URL: http://www.historicalvoices.org/repository/project_page.php?PHPSESSID=b12c089c727ba52ede88c5aa8f120c87. The browser's navigation bar includes buttons for Back, Forward, Stop, Refresh, Home, AutoFill, Print, and Mail. The page content is titled "ifan: Project Manager" and features a navigation menu with links for Search, List Records, Add Master, Add Preset, Design Project, Edit Users, Report Bug, Agent, and Logout. The main content area provides a welcome message and detailed instructions for each utility.

ifan: Project Manager [Search](#) | [List Records](#) | [Add Master](#) | [Add Preset](#) | [Design Project](#) | [Edit Users](#) | [Report Bug](#) | [Agent](#) | [Logout](#)

Welcome to Project: ifan

Search: Search allows you to search for metadata records using any or all metadata fields.

List Records: Supplies a full listing of the metadata records entered up to this point. Only active records are displayed. To view deleted, inactive, and/or presets, use the Search utility and select those options from the "Record Status" box.

Add Master: The Master is the first object to be digitized or the first digital object received by your project. Any objects derived from the original digital file would be a derivative and would be created by finding the record of the object it was created from and clicking the "add derivative" link. If a file is edited in any substantial manner, it then becomes a master file and not a derivative of the file it was edited from. To create a Master record, click the link, choose a preset if applicable, fill in the appropriate information for that record, and click "submit".

Design Project: Design Project allows you to configure the metadata elements used to describe the digital objects in your repository. This utility only appears for users that have "admin" rights.

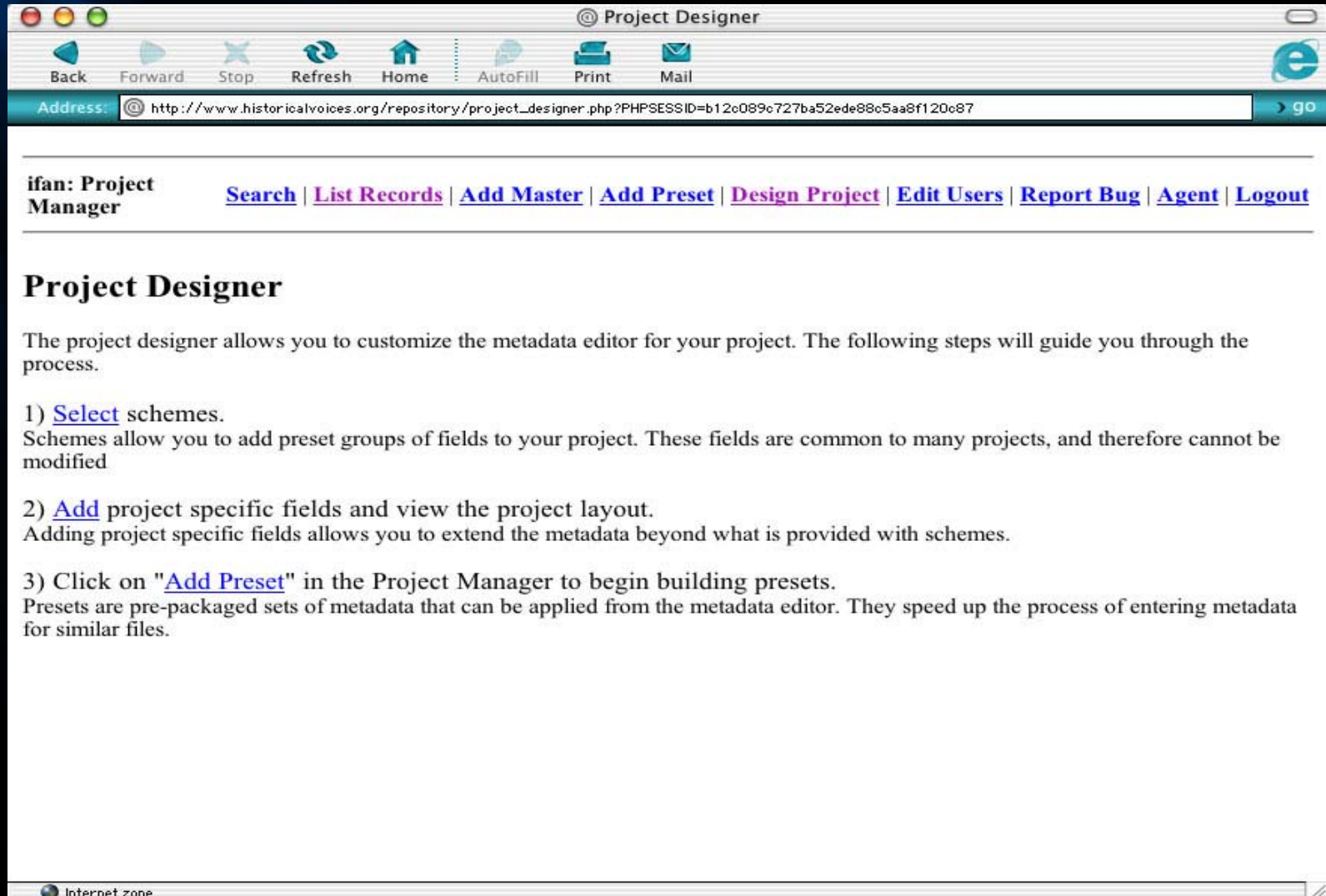
Edit Users: Add new users, remove users, or edit the rights of existing users. Giving a user Admin rights will allow them to create, modify, or delete elements from your project's metadata scheme, as well as administer users. "User" right will only allow them to create and administer metadata records.

Report Bug: Report any problems you experience with this utility. For questions about metadata or any other issues, contact Michael Fegan at mfegan@mail.matrix.msu.edu/517.355.9300.

Agent: The Agent lists information about who did what and when they did it with this resource. Click agent to see the actions users performed with this utility.

Internet zone

MATRIX Modular Project Design



The screenshot shows a web browser window with the title "Project Designer". The address bar contains the URL: http://www.historicalvoices.org/repository/project_designer.php?PHPSESSID=b12c089c727ba52ede88c5aa8f120c87. The browser's navigation bar includes buttons for Back, Forward, Stop, Refresh, Home, AutoFill, Print, and Mail. Below the address bar, there is a navigation menu with the following links: [Search](#), [List Records](#), [Add Master](#), [Add Preset](#), [Design Project](#), [Edit Users](#), [Report Bug](#), [Agent](#), and [Logout](#). The main content area features a heading "Project Designer" followed by a paragraph: "The project designer allows you to customize the metadata editor for your project. The following steps will guide you through the process." Below this, there are three numbered steps: 1) [Select](#) schemes. Schemes allow you to add preset groups of fields to your project. These fields are common to many projects, and therefore cannot be modified. 2) [Add](#) project specific fields and view the project layout. Adding project specific fields allows you to extend the metadata beyond what is provided with schemes. 3) Click on "[Add Preset](#)" in the Project Manager to begin building presets. Presets are pre-packaged sets of metadata that can be applied from the metadata editor. They speed up the process of entering metadata for similar files. At the bottom left of the browser window, there is a small icon and the text "Internet zone".

ifan: Project Manager

[Search](#) | [List Records](#) | [Add Master](#) | [Add Preset](#) | [Design Project](#) | [Edit Users](#) | [Report Bug](#) | [Agent](#) | [Logout](#)

Project Designer

The project designer allows you to customize the metadata editor for your project. The following steps will guide you through the process.

- 1) [Select](#) schemes.
Schemes allow you to add preset groups of fields to your project. These fields are common to many projects, and therefore cannot be modified
- 2) [Add](#) project specific fields and view the project layout.
Adding project specific fields allows you to extend the metadata beyond what is provided with schemes.
- 3) Click on "[Add Preset](#)" in the Project Manager to begin building presets.
Presets are pre-packaged sets of metadata that can be applied from the metadata editor. They speed up the process of entering metadata for similar files.

Internet zone

MATRIX Modular Project Design

ifan: Project Manager

[Search](#) | [List Records](#) | [Add Master](#) | [Add Preset](#) | [Design Project](#) | [Edit Users](#) | [Report Bug](#) | [Agent](#) | [Logout](#)

Scheme Selection

Schemes are metadata sets that can be added to your project. These fields are common to many projects, and therefore cannot be modified. Although the fields for a scheme can't be modified, you can add fields to the core set of metadata that only will appear for your projects. If you think the metadata schemes need to be altered in some way, please contact MATRIX.

These are the schemes that are currently being used:

These are the schemes that you can add to the project:

Internet zone

MATRIX Modular Project Design

Field Editor

The field editor allows you to create or modify the information about a particular field that will describe an object for your project. Fill in the appropriate information for the metadata field and press the submit button. Click [here](#) for definitions of each of the forum fields in the field editor.

Group: or if other:

Name:

Required

Sequence:

Description:

Caption:

Type:

Note:

Internet zone

MATRIX Modular Project Design

METADATA EDITOR: ifan-a0a0a7-a

Back Forward Stop Refresh Home AutoFill Print Mail

Address: http://www.historicalvoices.org/repository/metadata_editor_form.php?pbd=ifan-a0a0a7-a&PHPSESSID=b12c089c727ba52ede88c5aa8f120c87

METADATA EDITOR: ifan-a0a0a7-a

To create a record, fill in the appropriate information for that record and the option to update the record by clicking edit for that particular record once the data is filled in at a later time

Internet Explorer Script Alert

! Improper format. Please enter a name in the format: lastname, firstname

OK

descriptive

Title:

Author/Interviewee:

Interviewer:

Keywords:

Description:

Publication Date:

Language:
french
Wolof

Internet zone

MATRIX Modular Project Design

ifan: Project Manager [Search](#) | [List Records](#) | [Add Master](#) | [Add Preset](#) | [Design Project](#) | [Edit Users](#) | [Report Bug](#)
| [Agent](#) | [Logout](#)

Agent Viewer

pbd	date_time	actor	action
ifan-a0a0a0-a	2002-07-02 14:57:01	ifanadmin	Added Master Record
ifan-a0a0a01-a	2002-07-02 14:57:12	ifanadmin	Added Master Record
ifan-a0a0a02-a	2002-07-02 15:01:38	ifanadmin	Added Master Record
ifan-a0a0a01-a	2002-07-02 15:02:58	ifanadmin	Metadata Edited
ifan-a0a0a01-a	2002-07-02 15:04:39	ifanadmin	Deleted Record
ifan-a0a0a03-a	2002-07-02 15:05:41	ifanadmin	Added Preset
ifan-a0a0a03-a	2002-07-02 15:05:53	ifanadmin	Metadata Edited
ifan-a0a0a04-a	2002-07-02 15:06:22	ifanadmin	Added Master Record
ifan-a0a0a03-a	2002-07-02 15:06:49	ifanadmin	Deleted Record
ifan-a0a0a04-a	2002-07-02 15:07:40	ifanadmin	Deleted Record
ifan-a0a0a05-a	2002-07-02 19:52:11	ifanadmin	Added Master Record
ifan-a0a0a06-a	2002-07-03 08:53:33	ifanagent	Added Master Record
ifan-a0a0a07-a	2002-07-03 08:54:15	ifanadmin	Added Master Record
ifan-a0a0a07-a	2002-07-03 09:02:09	ifanadmin	Metadata Edited
ifan-a0a0a07-a	2002-07-03 09:03:19	ifanadmin	Metadata Edited

Internet zone

Modularity for Flexible Delivery:

- Alternative Delivery formats
 - Archival: Search, browse, sort
 - Galleries: Content based-groupings
 - Exhibits: Structured presentations
 - Educational classrooms
- Diverse interfaces for diverse audiences
- SMIL and flash presentations of multimedia material

Modularity for Future Growth:

- Developing user-generated content over time to enhance repository
 - Commentary
 - Supporting content
 - Usage information
 - Collateral links

Building Digital Repositories for the Future:

- From the digital card catalog and the html page to complex flexible digital objects
(examples)

Partnerships Needed to Build Digital Repositories:

The MATRIX Experience

- Computer Skills
- Library and archival sensibilities and knowledge
- Faculty authorial vision
- Educational insight