Avalon Media System: Community Implementation and Sustainability

Open Repositories 2015
10 June 2015

Jon Dunn, Indiana University
Julie Rudder, Northwestern University
Debs Cane, Northwestern University
Mike Durbin, University of Virginia
Hannah Frost, Stanford University
What is the Avalon Media System?

The Avalon Media System is a robust, fully open source solution for curating and providing online access to digital audio and video collections in libraries and archives. The system is being developed collaboratively by the libraries at Indiana University and Northwestern University in partnership with ten additional institutions that have committed resources for testing, evaluation and feedback.
Open Source Technologies

hydra

Fedora™
With Avalon You CAN:

Robert Marcellus Master Class Audio Archives
Northwestern University Football Films

Using the System
The Audio+Video Repository houses audio and video collections.

- Use the search box, or browse using the terms on the left side to discover content.
- Some content is only available when you sign in with your NetID and password.
- Login to Blackboard or Canvas to access course materials via the Library Media link.
<table>
<thead>
<tr>
<th>Collection</th>
<th>Items</th>
<th>Managers</th>
<th>Delete</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northwestern University Football Films</td>
<td>23 items (1 unpublished)</td>
<td>0 managers</td>
<td>Delete</td>
</tr>
<tr>
<td>Robert Marcellus Master Class Audio Archives</td>
<td>22 items</td>
<td>0 managers</td>
<td>Delete</td>
</tr>
<tr>
<td>Course Video</td>
<td>37 items (2 unpublished)</td>
<td>2 managers</td>
<td>Delete</td>
</tr>
<tr>
<td>Streaming Testing</td>
<td>18 items (11 unpublished)</td>
<td>1 manager</td>
<td>Delete</td>
</tr>
<tr>
<td>Course Audio</td>
<td>25 items (1 unpublished)</td>
<td>2 managers</td>
<td>Delete</td>
</tr>
</tbody>
</table>

Create Collection
Manage file(s)

Upload through the web

Uploaded files must not exceed 250 MB

Import from a dropbox

Use the dropbox to import large files. Attach selected files after uploading. Files will be begin processing when you click Save and continue.

Dropbox location: sftp://localhost/srv/avalon/dropbox/Public_Demo_Collection

Contact your system administrator for more information.
Selected Items

1. 245 A: B F G K N P S (20:46)
   Main contributors: 110 A B C D F G K L N P S
   Date: 1999 (Creation date: 1999)
   Summary: 520 A

2. Bowl of Goldfish (00:12)
   Main contributors: Unknown
   Date: 2014
   Summary: Testing item for demonstration

Manage Access Control Settings

Discovery
- Show these items in search results
- Hide these items from search results

Item Access
- Available to the general public
- Logged in users only
- Collection staff only

Special Access

Avalon User

Avalon Group

External Group

Add
Remove

Save
Release 4: Summer 2015

- Dependency Simplification
- Transcoding API
- Structural Metadata
- Accessibility: Phase One

Other Features:
- Wowza integration
- Hydra 8
- Canvas LTI integration improvements (linking directly to item/section)
- oEmbed support
Mellon Grant Overview

• Continuing software development and integration
• Assessment of Scholarly Needs
• Business and Sustainability Model Development
• Hosted Service Offering
Release Functionality

The team approaches release plans in an agile manner, allowing for a solid path forward but also leaving room to respond to community and user feedback in a timely manner.

**Release 5**
December 2015
- Technical environment for pilot SAAS
- Captioning
- Robust API development

**Release 6**
June 2016
- Bookmarking, Clip making, Playlists
- Annotation
- Synchronized Transcripts
- Spotlight Integration

**Release 7**
December 2016
- Publishing Out to External Media Sites
- Dynamic Adaptive Streaming
- Access control enhancements
Mellon Grant Overview

Assessment of Scholarly Needs

One important goal of this project is to fill out the Avalon requirements and implementation such that the system offers robust support for humanities scholarship.
Mellon Grant Overview

Business and Sustainability Model Development

The community of Avalon users and developers needs to become a robust, self-funded entity attracting continued investment so it can keep pace with technology changes and emerging use cases.
Mellon Grant Overview

Hosted Service Offering

Even some larger institutions have indicated an interest in being able to subscribe to a cloud-hosted instance of Avalon without having to devote their own system administrator and developer resources to its installation, maintenance, customization, and technical support.
Development Team

Chris Colvard
Lead developer

Julie Hardesty
Scrum master, metadata analyst

Cynthia Ramlo
Lead User Experience Designer

Jon Dunn
Project director

Julie Rudder
Project owner

Stefan Elnabli
Audiovisual Media Specialist

Karen Miller
Metadata analyst

Michael B. Klein
Lead developer

Brian Keese
Developer

Paul Clough
Developer

Leah Lee
Developer

Debs Cane
Repository Community Manager
Avalon at Indiana University
IU Context

- History of audio/video digitization
- Legacy systems for delivery
- Eight campuses
- New demands
- Media Digitization and Preservation Initiative
Legacy Systems

Variations
The Indiana University Digital Music Library

EVIA
Ethnomusicological Video for Instruction and Analysis

Ethnomusicology Multimedia

Darwin Streaming Server

IU ScholarWorks repository
IU Deployment Environment

Library servers

- Avalon Web App
  - Solr, Fedora
  - 4 core, 1GB RAM VM
  - 1GB Disk (VMware)

- Transcoding
  - 12 core, 120GB RAM, 8TB dedicated hardware

University IT Services

- Redundant Archive Storage (HPSS) - Master Files
- Shared SAN - Derivatives
- IU Enterprise Streaming - Adobe Media Server
- Library servers
- University IT Services
Archival Film

Confidence

Main contributor
American Mutoscope and Biograph Co.

Date
1909

Summary
[motion picture]

Collection
David S. Bradley Film Collection

Unit
Indiana University Libraries Film Archive

Copy the link below to share this resource
http://purl.dlib.indiana.edu/iudl/media/653702rrr38
Omeka Online Exhibit:
World War II Propaganda Films
Media Within Archival Collections
Online Publishing: Ethnomusicology Multimedia
Institute for Juvenile Court and Corrections Research
Specialized Avalon Instance: Kelley School of Business
Future Migrations

• Video e-reserves
  • LTI integration with Sakai, Canvas
• Licensed educational video
  • LDAP for campus restriction
• Variations: music audio
  • Pedagogical, annotation tools
• Media Digitization and Preservation Initiative
IU Media Digitization and Preservation Initiative

mdpi.iu.edu
Julie Rudder  j-rudder@northwestern.edu
Digital Initiatives Project Manager
OR2015
How we managed 30k assets

- Spreadsheets
- Emailing links
- Limited access control
- Lots of support, help pages, phone calls, email
- Minimal metadata
Really long help pages

3. Click "More Info" to be directed to the Java install page.

To use this applet from "server27-vfnow.nutv.northwestern.edu," you need to download the Java plug-in.
Click "More Info..." to visit the plug-in's website.

4. Click "Agree and Start Download".

5. Click "Save File" as shown below.
All new requests go into Avalon....

AVALON

Starting 2004 – 30,000+ streamed assets served

...Retire legacy systems
I'M HAVING CANDY FOR DINNER
What the Customer Described.
What got budgeted.
What the Engineer Designed.

How Manufacturing installed it.
What Marketing Advertised.
What got documented.

What the Customer finally received.
What the customer was billed for.
What the customer actually wanted.
Robert Marcellus Master Class
Audio Archives

Northwestern University
Football Films

Using the System
The Audio+Video Repository houses audio and video collections.

- Use the search box, or browse using the terms on the left side to discover content.
- Some content is only available when you sign in with your NetID and password.
- Login to Blackboard or Canvas to access course materials via the Library Media link.
NU Integrations

- LDAP
- Permanent URLs – Handle.net
- Private dropbox for collections (SMB mounts)
- AMS streaming
- Integration to existing Fedora
- Canvas LTI
Avalon LTI View
Public Demonstration Collection > Prelinger Archives. 1955 Chevrolet Screen Ads

Access Control

Item discovery

- Hide this item from search results

Item access

- Available to the general public
- Logged in users only
- Collection staff only

Assign special access

Avalon User

- j-rudder@northwestern.edu

Avalon Group

- PrimoTest

External Group

- PrimoTest

Save Save and continue
NU Production Environment

New Provisions
- Avalon Web App
- Transcoding
  - 4 TB dedicated Hardware
- VM

Existing Production Systems
- Enterprise Campus Streaming with Load Balancer
- Streaming - FMS 2
- Streaming - FMS 1
- Shared SOLR
- Dedicated SOLR Core
- Shared Production Fedora
- Fedora
Staffing and Support

1 DevOps (install, configure, support)

1 Developer (app customization, support)

1 Project Manager (app oversight, integrations oversight)

1 Service Manager (liaise with units & users, workflow, support)
Google Analytics
Sept 1, 2014 to June 1, 2015

- Sessions: 48,049
- Users: 12,865
- Pageviews: 163,820

Returning Visitor: 73.8%
New Visitor: 26.2%
Avalon allows for new uses

- Collections that were not available before or were scattered around on Youtube
- Digital Humanities support
- Faculty research output
- Multimedia Learning Center
Unit - Multimedia Learning Center

Repository | audio + video

Browse

Browse by

Format

Date

Genres

Collection

MMLC Student Work (6)
MMLC Produced Content (2)

Unit

WCAS Multimedia Learning Center (7)

You searched for Unit > WCAS Multimedia Learning Center

1 - 7 of 7

1. Jazib Farooqui Interview (1:10:01)

- Main contributors: Prateek Singh; Jazib Farooqui; Ji-Yeon Yuh
- Date: February 20, 2015
- Summary: Prateek Singh (Born May 24 1996), a Northwestern student majoring in Religious Studies and participating in the Winter 2015 class "Oral Histories and Migration" interviews Jazib Farooqui (Born May ...

2. Josie Disterholt Interview (1 of 2) (1:20:13)

- Main contributors: Michaela Shapiro; Josie Disterholt; Ji-Yeon Yuh
- Date: January 20, 2015
- Summary: Michaela Shapiro (Born October 8 1995), a freshman in the Weinberg College of Arts and Sciences at Northwestern University, participating in the Winter 2015 class "Oral Histories and Migration" int...
1. Jazib Farooqui Interview (1:10:01)

- Main contributors: Prateek Singh; Jazib Farooqui; Ji-Yeon Yuh
- Date: February 20, 2015
- Summary: Prateek Singh (Born May 24 1996), a Northwestern student majoring in Religious Studies and participating in the Winter 2015 class "Oral Histories and Migration" interviews Jazib Farooqui (Born May ...

2. Josie Disterhoft Interview (1 of 2) (1:20:13)

- Main contributors: Michea Shapiro; Josie Disterhoft; Ji-Yeon Yuh
- Date: January 20, 2015
- Summary: Michea Shapiro (Born October 8 1995), a freshman in the Weinberg College of Arts and Sciences at Northwestern University, participating in the Winter 2015 class "Oral Histories and Migration" int...
Supporting faculty research

Ji-Yeon Yuh

Writer

Ji-Yeon Yuh is a reporter, writer, editor and professor in Asian American history and Asian diasporas at the Northwestern University. Since 2005, Yuh is the director of Program in Asian American Studies at Northwestern University. Wikipedia

Education: University of Pennsylvania, Stanford University
AVALON at the University Of Virginia

Open Repositories 2015
Background
Online Access before Avalon

- “Boutique” websites
  - QuickTime media embedded in static pages
  - occasional access controls
- Kaltura-hosted streaming media linked from MARC records
- Kaltura video embedded in OPAC view
- Shared Shelf
Description before Avalon

- MARC records in Sirsi Workflows
- Google Forms
- Spreadsheets
- Shared Shelf
Preservation before Avalon

Lots of copies with…

...info about where they were…

...spread across staff members for safe keeping.

LOTS OF COPIES on my desk KEEPS STUFF SAFE
Current State
Implementation Timeline

● 2014-July - 3.0 soft launch
● 2014-September - 3.1 upgrade
● 2015-January - 3.2.1 update
● 2015-February - OPAC integration
● 2015-May - 3.3 update
  ○ added MARC import feature for copy cataloging
Content

- Licensed commercial content
- University-produced content
  - lectures
  - concert recordings
- Reformatted rare and unique A/V resources
  - films
  - newsreel footage
  - radio programs
  - oral history recordings
  - unpublished traditional music recordings
Access Scenarios

- Consortial access
- University access
- Collection Manager access
- Public access
Production Setup

**Production Setup Diagram**

- **Production Setup Diagram**
  - **Firewall**
  - **F5 Load Balancer**
  - **Avalon VM**
    - **Rails (RVM)**
    - **Fedora Solr**
  - **Transcoding Hardware**
    - **Matterhorn**
  - **Red5**
  - **Hardware Streaming**
  - **F5 Load Balancer**
  - **Blacklight - based Discovery and Access**
  - **Indexing process**
  - **Matterhorn**
  - **Red5**

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**Diagram Details**

- **F5 Load Balancer**: Central to the setup, managing load balancing.
- **Avalon VM**: Running Rails (RVM), Fedora Solr.
- **Transcoding Hardware**: Matterhorn for transcoding.
- **Red5**: Hardware Streaming component.
- **Blacklight - based Discovery and Access**: Integrates with the other components.
- **Indexing process**: Critical for content indexing.

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**Technical Components**

- **Production Setup**
  - **Firewall**
  - **Fedora Solr**
  - **Matterhorn**
  - **Red5**
  - **Blacklight - based OPAC**
  - **Transcoding**
  - **Hardware**
  - **Indexing process**

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**Integration Points**

- **embeds**: Indicates integration or dependency paths among components.
Access Experience

- Consortial Users access the materials directly in Avalon through links at portal sites or within their catalog
- UVA users view content embedded within Virgo
- Privileged/Expert users may access or discover resources directly within Avalon
## Cathedrals of Culture

**Format**
Online, Online Video

**Creator**

**Date**
2014

**Summary**
Six acclaimed filmmakers bring their own visual style and artistic approach to the exploration of six different landmark buildings, showing us how they reflect our culture and guard our collective memory. The buildings featured are the Berlin Philharmonic Hall, the National Library of Russia, Halden Prison, the Saik Institute, the Oslo Opera House, the Centre Pompidou.

Six 26 minute episodes of a made-for-TV documentary series.

**Duration**
2:40:15

**Publisher**
Neue Road Movies (Film)

**Collection**
Robertson Media Center Streaming Content

**Watch Online**

<table>
<thead>
<tr>
<th>Part</th>
<th>Part 2</th>
<th>Part 3</th>
<th>Part 4</th>
<th>Part 5</th>
<th>Part 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>The Berlin Philharmonic</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

This video content is restricted.
You must be logged in and authorized to view it.
Cathedrals of Culture

Format: Online; Online Video

Creator: Wenders, Wim; Glaogger, Michael, 1959-2014; Madsen, Michael, 1971-; Redford, Robert; Cin, Margreth, 1970-; Alnouz, Karim

Date: 2014

Summary: Six acclaimed filmmakers bring their own visual style and artistic approach to the exploration of six different landmark buildings, showing us how they reflect our culture and guard our collective memory. The buildings featured are the Berlin Philharmonic Hall, the National Library of Russia, Halden Prison, the Salk Institute, the Oslo Opera House, the Centre Pompidou.

Six 26-minute episodes of a made-for-TV documentary series.

See more

Watch Online

The Salk Institute
Description Workflows

- Spreadsheet import
  - legacy collection, migration
- Avalon form entry
  - customized descriptions and guidelines from Metadata team
  - Training and documentation for catalogers
Preservation

- Avalon is now the system of record for item-level descriptive metadata
- Master files are passed along to mirrored storage
- External processes can perform fixity checks
- Content can be packaged for submission into AP Trust
Conclusions
Customization/Integration

- Authentication
- Branding
- Publication pipeline
- Preservation pipeline
Results

- A service and a brand
- Replaced old functionality
- Addresses many needs as “low-hanging fruit”
- Frees up time, clarifies needs for more robust preservation planning
Thanks

Michael Durbin
md5wz @ virginia.edu
Avalon

at Stanford

Hannah Frost
Services Manager
Stanford Digital Repository
Stanford Media Preservation Lab

OR 2015 ❖ Indianapolis ❖ June 10, 2015
Imperfect World
The SMG is a vibrant community of individuals from across the campus involved in video and audio media. We come together to share and foster best practices, expose and address common needs, and propose and implement solutions -- all in the interest of supporting teaching, learning, and research at Stanford University. All are welcome to join.

Upcoming SMG meetings

Date: May 29, 2015
Time: 3-4:30 PM
Location: Turing Auditorium

Topic: Asset Management

Kathleen Cameron (and others) will present on the current requirements and vendor evaluation around Digital Asset Management (DAM) products. Come hear the latest on this exciting front!
AV Media Assets to Manage

- Collections acquired by the library
- Works produced by faculty, students, campus units
- Content selected for course reserves
Our Special Concerns

• Metadata standards
• Preservation
• Rights management
• Controlled access
• Persistent online location
• Accessibility
Need 1: Library collections

Media Preservation Program Goals

• Maintain long-term access to at-risk materials through high-quality reformatting

• Support collection development

• Promote use of media in teaching and research

• Integrate with digital library
  – Services
  – Technology

• Develop expertise, best practices, community
Rising Patron Digitization Requests

69 Items requested in Sept 2014 alone!
Top Collection Websites: Media

Stanford University Digital Collections

Women Art Revolution

Riverwalk Jazz

First Channel

Summit Ridge Drive: The Genius of Artie Shaw

Artie Shaw always wanted to be perceived as an "artist" rather than an entertainer, or even a jazz musician. He once said, "Art happens when somebody with skill loves what he is doing and works at the absolute top level of his ability." This edition of Riverwalk Jazz is devoted to the artistry of clarinetist Artie Shaw.

Read more
Program Goals – Checking In

✔ Maintain long-term access to at-risk materials through high-quality reformatting

✔ Support collection development

☐ Promote use of media in teaching and research

☐ Integrate with digital library
  ✔ Services
  ☐ Technology: discovery and delivery

✔ Develop expertise, best practices, community
Media Access Working Group (2013)

Recommendations include:

• Augment systems and tools that
  – Reduce ingest backlog
  – Promote discovery and use

• Confront the rights barriers by
  – Developing reasonable access policies
  – Implementing technologies to control access
Need 2: Stanford media makers

Launched 2013 * 562 collections * 358 depositors
Jonathan Berger, Professor & Composer
Department of Music
**The War Reporter**

**Author/Creator:** Berger, Jonathan (Creator)  
O'Brien, Dan (Creator)

**Date created:** April 01, 2013

**Type of resource:** Moving image

**Genre:** Motion picture

**Abstract:** The War Reporter is a chamber opera by Jonathan Berger.


**Contact:** borg@ccrma.stanford.edu

**Collection:** Visitations

**Subject:** hallucination, music, opera, computer music, ambisonic, chamber music

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<table>
<thead>
<tr>
<th>Description</th>
<th>File (Download)</th>
</tr>
</thead>
<tbody>
<tr>
<td>The War Reporter_ST_070713_web.mov (2 GB)</td>
<td><img src="The_War_Reporter_ST_070713_web.mov" alt="Image" /></td>
</tr>
<tr>
<td>war-reporter-SHORE-8x14.pdf (5 MB)</td>
<td><img src="war-reporter-SHORE-8x14.pdf" alt="Image" /></td>
</tr>
</tbody>
</table>

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Mike Osborne and Miles Traer, PhD Students

Generation Anthropocene: Stop Saving the Planet!

Contributor:
- Jenny Price - Guest (Contributing author)
- Aaron Strong - Interviewer (Contributing author)
- Michael Osborne - Interviewer/Producer (Contributing author)
- Miles Traer - Producer (Contributing author)
- Leslie Chang - Producer (Contributing author)
- Maxine Lackett - Transcriber (Contributing author)

Abstract: Historian, author, and urban park ranger Jenny Price makes her case for throwing out the well-worn approach stemming from social justice, a re-contextualization of nature, and even satire, in favor of the concrete Los Angeles river. As she wraps up, Jenny discusses how her satirical approach is a way to create a safe space to talk about the Anthropocene's reality. The Anthropocene is an informal term that marks the evidence and extent of human impact on the environment.

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Capoeira in the San Francisco Bay Area

Contributor: Mattar, Daniel (Contribution author)  
Sebastian, Esther (Contribution author)  
Barbosa, Jomar (Contribution author)  
de Sa, Ronaldo ‘Mestre Beicola’ (Contribution author)  
Boxley, Rahan (Contribution author)

Author/Creator: Makam, Megha (Author)

Date created: June 2014

Type of resource: Sound recording – nonmusical

Genre: Sound

Abstract: The interviews here contain conversations with practitioners of capoeira that live in the San Francisco Bay Area. The interviews include the following people: Daniel Mattar is an instructor at FICA Oakland, teaching the Capoeira Angola style. Esther Sebastian and Jomar Barbosa are students of Capoeira Angola style and attend Daniel’s training sessions in Sunnyvale, CA. They are visiting from Brazil and have a group that they train with in Sao Paulo (Grupo Nzinga). Mestre Beicola (actual name Ronaldo de Sa) is a capoeira mestre from Rio de Janeiro. More...

Contact: meghamakam@gmail.com

Collection: Music Ethnography of the Bay Area Collection – ARS.0152

Subject: ethnomusicology  
capoeira  
ethnography  
Brazil  
Bay Area  
art  
culture  
movement  
music  
dance

File (Download)  
Interview_Daniel_Mattar.wav (2.0 GB)  
Interview with Daniel Mattar, May 6, 2014

Interview_Esther_Jomar.WAV (400 MB)  
Interview with Esther Sebastian and Jomar Barbosa, May 8, 2014
Chris Gerdes, Director
Revs Program, Dynamic Design Lab
Need 3: Content for access by LMS

Sakai

Stream

Kaltura

open source video

canvas

+ ?
Looking for a Solution

• Technology
  – Open source
  – Open-minded and flexible

• Community
  – Vibrant, smart
  – Digital library-centric
Avalon at Stanford

• Shares common concerns
  – Standards, preservation, access control, persistence, etc.

• Meets our core needs
  – Functional, technical, philosophical
  – Tested by Media Access Working Group
  – Supported by SUL Management

Adoption has been obvious, but ...
Avalon is self-contained
Our digital library is not self-contained
Then comes

Avalon Release 4
Avalon on Stanford’s digital library
Special Areas of Interest

- Wowza Streaming Engine
- Pluggable transcoding engine
- Open Annotation
- Transcripts/captions
- Capturing special license terms
- Integration with Fedora 4
- Making Avalon more modular
Thank you!

Hannah Frost
hfrost@stanford.edu
Questions?

www.avalonmediasystem.org