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Creating a Database for a Streaming Audio Service for Course Reserves at the University of Alabama Libraries

Streaming Audio in Libraries

- Many college and university libraries offer streaming and/or downloading services.
- Commercial music databases do not offer all of the music needed for music courses, so in-house streaming services are necessary.

UA Music Library Streaming Service

- CD tracks converted to RealMedia files using Autodesk Cleaner.
- Numark turntable and Firebox analog-to-digital converter used to digitize LPs.
- Audio files uploaded to the library's Helix server for streaming.

UA Music Library Streaming Service

- Users access streaming files through eLearning, the password-protected course management system at UA.
- Students have access only to music assigned for courses in which they are enrolled.
- Students and faculty can access the streaming files from any computer with an Internet connection that is running RealPlayer.

Audio File Formats and Streaming Technology

- Presented learning challenges.
- Involved lots of decisions.
- The hard part was still to come…

Development of a database

- Worked with Clay Davis, Area Computer Manager for UA's School of Library and Information Studies.
- Created a database to store and display music metadata.
- Database linked to web pages to display information to users.

What should the database provide to users?

- Web pages display basic information about each musical work, including:
  - Composer name
  - Work title
  - Movement or section information
  - Hyperlink to audio file
  - Hyperlink to PDF of text for vocal works

http://130.160.141.245/musicdb/?q=node/28/?&plistid=12

How should the metadata be handled?

- Currently, MARC, Dublin Core, and Encoded Archival Description schema are being adapted and used for music metadata. All of these require modification and extension to accommodate music-specific information.

Important Library Music Project

- Variations project at Indiana University http://www.dlib.indiana.edu/projects/variations3/index.html

Variations3

- Involves digitizing all of the recorded music in IU's collection.
- Also involves digitizing public domain scores. http://www.dlib.indiana.edu/variations/scores/baj3443/large/index.html
- Uses MARC with links to additional metadata.
- Metadata is FRBR-ized.

Variations3

- Variations3 is a complete system that interfaces with the library catalog, providing many access points for search and retrieval for all manifestations of a work.
- It is designed not just to stream course reserves but to stream all of the music in the IU collection.
- It requires a great deal of time and resources to implement.

MARC and Dublin Core

- Both schema would be hard to adapt for this project.
- Not enough fields to provide for all information needed about music-specific information, including access at the movement level.
- No provision for fields dealing with course information.
- In addition, actually adding to catalog records would involve the work of many people.

Metadata Fields with Example Entries

Music Object Description

Composer Name: Monteverdi, Claudio
Composer Alternate Name: ---
Work Title: Orfeo
Alternate Work Title: ---
Librettist/Lyricist/Poet: Rinuccini, Ottavio
CD/LP Number: CD 2
Link to library catalog: http://library.ua.edu/cgi-bin/Pwebrecon.cgi?BBID=52695
Performance Information: Chiaroscuro Ensemble/Nigel Rogers
Movement/Act Information: Act 3-Orfeo:"Possente spirto"
Disc Number: 2
Track Number: 5
Link to audio file: Monteverdi/Orfeo/Act3/5.Possente.rm
Link to pdf file for text: Monteverdi/Orfeo/Act3/5.Possente.pdf

Metadata Fields for Course Information

Course Description

Course number
Course name
Course date
Instructor name

Additional Fields for LP Digitization

Additional Fields for LPs

Condition of LP
Preparation (cleaning, for example)
Audio processing (if any)
Audio file format
Date of file creation
Personnel

Database Decision

- Adapt an existing database?
- Create a database from scratch?

Problems in adapting existing databases

- Commercial music databases, such as iTunes, are more appropriate for popular music.
- iTunes does not provide fields for all the information needed for Western classical music.
- Other commercial databases also not well-suited for music.

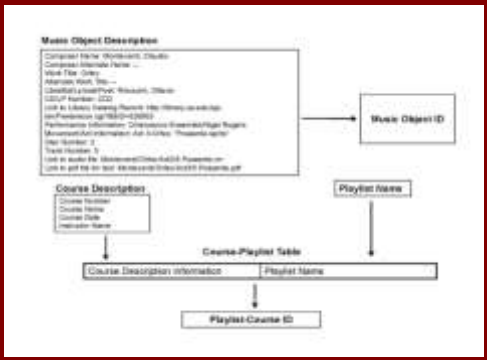
Decision: Create database from scratch

- MySql database is an open-source application.
- Widely used and adaptable for many purposes.

MySql Rudimentary Knowledge

- Turned out to be necessary.
- Programmers do not necessarily know enough about music to design a music database.
- Musical relationships, such as the relationship of a work and its component movements must be clear.

Overview of Music Database Structure



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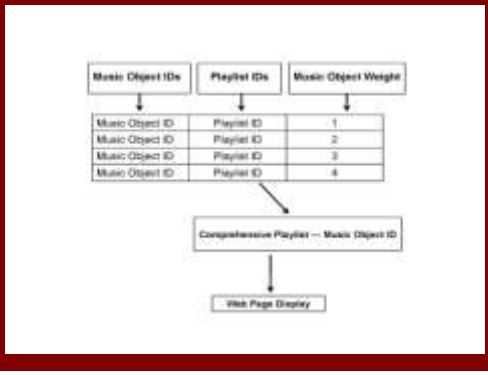

Future Plans

- Add fields to account for "composite works," that is works made up of a number of parts by different composers, such as revues.
- Implement SMIL encoding, making it possible for audio files to play consecutively without prompting from the user.
- Add field for scanned images of scores.
- Improve web page display.

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