TIPR Progress

Towards Interoperable Preservation Repositories

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Presentation Overview

- Motivation & Approach
- TIPR Partners: Heterogeneous Repositories, AIPs
- Repository Exchange Package (RXP)
- Transfer Tests
- Progress & Issues to Date
- Next Steps
- Questions
Motivation & Approach

**Motivation:**
- Repositories need to exchange AIPs for:
  - redundancy
  - software migration
  - succession planning

**TIPR Approach:**
- define a common exchange package format: the Repository Exchange Package (RXP)
TIPR Repositories

- FCLA Archive
  - producer
  - producer

- RXP Format

- Cornell Archive
  - producer
  - producer
  - producer

- NYU Archive
  - producer
  - producer
  - producer
Florida Center for Library Automation (FCLA)

- runs the DAITSS Preservation Repository

**Team**: Priscilla Caplan (PI), Franco Lazzarino, Marly Wilson, Randy Fischer
 Cornell University Libraries (CUL)

- runs an aDORe-based repository
- migrating to Fedora

**Team:** Oya Rieger, Bill Kehoe, Rick Silterra, Adam Smith
New York University Libraries (NYU)
- runs a DSpace-based repository
- Team: Dr. Michael Stoller, Joseph Pawletko, Rasan Rasch
• **One AIP per Intellectual Entity**

• **Retain First and Latest Representations**

• **Discard Intermediate Representations**
TIPR
AIP Structures
CUL

- One AIP per Representation
- Retain All Representation AIPs (including “intermediates”)

[Diagram showing a sequence of representations R₀ → R₁ → R₂ → Rₙ with arrows indicating the direction of the sequence.]

[Diagram of a cycle with producers connected to an Archive, indicating the flow of information.]
TIPR

AIP Structures

NYU

- One AIP per Intellectual Entity
- Retain all Representations (including “intermediates”)

Intellectual Entity

- Representation $R_0$
- Representation $R_1$
- Representation $R_2$
- Representation $R_n$

NYU Archive

- producer
- producer
- producer

TIPR AIP Structures NYU
## Repository / AIP Heterogeneity:

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<th>NYU</th>
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Repository Exchange Package (RXP)

- RXP design goals:
  - use standards:
    - METS and PREMIS
  - be able to accommodate different AIP structures
  - contain sufficient data for receiving repository at:
    - RXP level
    - Representation level
  - identify data that receiving repository must understand
RXP: Minimal Structure

./rxp.xml

./rxp-digiprov.xml

./rxp-rep-1.xml

./rxp-rep-1-digiprov.xml

./files/
RXP: Minimal Structure

- ./rxp.xml
- ./rxp-digiprov.xml
- ./rxp-rep-1.xml
- ./rxp-rep-1-digiprov.xml
- ./files/

RXP-level information
RXP: Minimal Structure

Representation-level information
RXP: Minimal Structure

- ./rxp.xml
- ./rxp-digiprov.xml
- ./rxp-rep-1.xml
- ./rxp-rep-1-digiprov.xml
- ./files/

METS document containing Source Repository info. References RXP provenance, (optional) rights, and represenations
RXP: Minimal Structure

- ./rxp.xml
- ./rxp-digiprov.xml
- ./rxp-rep-1.xml
- ./rxp-rep-1-digiprov.xml
- ./files/

PREMIS document containing RXP-level digital provenance
RXP: Minimal Structure

- ./rxp.xml
- ./rxp-digiprov.xml
- ./rxp-rep-1.xml
- ./rxp-rep-1-digiprov.xml
- ./files/

METS document describing representation 1
RXP: Minimal Structure

- ./rxp.xml
- ./rxp-digiprov.xml
- ./rxp-rep-1.xml
- ./rxp-rep-1-digiprov.xml

PREMIS document containing representation 1 digital provenance
RXP: Minimal Structure

directory containing the representation files

./rxp.xml

./rxp-digiprov.xml

./rxp-rep-1.xml

./rxp-rep-1-digiprov.xml

./files/
RXP: Optional Files

./rxp-rights.xml

PREMIS document containing RXP-level rights information

./rxp.xml.sig

a stand-alone digital signature in OpenPGP format generated using sender’s private key, and rxp.xml
RXP: Optional Files

information for additional Representations

Each `rxp-rep-n.xml` must be accompanied by a corresponding `rxp-rep-n-digiprov.xml`. 

- `./rxp-rep-2.xml`
- `./rxp-rep-2-digiprov.xml`
- `./rxp-rep-n.xml`
- `./rxp-rep-n-digiprov.xml`
Transfer Tests

- Two different transfer scenarios
  - Broadcast Transfer
  - Ring Transfer
- Analyzing test results against expectations
  - using results to improve RXP structure
FCLA sends $RXP_{FCLA}$ to CUL and NYU. CUL and NYU Ingest $RXP_{FCLA}$. 
CUL sends $\text{RXP}_{\text{cul}}$ to FCLA and NYU. FCLA and NYU Ingest $\text{RXP}_{\text{cul}}$. 
NYU sends $\text{RXP}_{\text{NYU}}$ to FCLA and CUL.
FCLA and CUL Ingest $\text{RXP}_{\text{NYU}}$. 
**TIPR**

Testing:

Ring

Transfer

**FCLA** sends $RXP_{FCLA}$ to **CUL**.

**CUL** Ingests $RXP_{FCLA}$.
CUL sends $\text{RXP}_{\text{FCLA,CUL}}$ to NYU. NYU Ingests $\text{RXP}_{\text{FCLA,CUL}}$. 
TIPR Testing: Ring Transfer

NYU sends RXP_{FCLA,CUL,NYU} to FCLA. FCLA Ingests RXP_{FCLA,CUL,NYU}. 
Progress to Date

- Wrote and revised initial RXP Specification
  - Require **info**: URIs for PREMIS identifiers
- Identified and resolved issue with RXP history tracking
  - now tracking RXP history in `rxp-digiprov.xml`
- Modified Partner Repositories to export and import RXPs
- Wrote & used Schematron validation scripts to test RXPs
- Completed Broadcast Transfer
- Wrote requirements for Inter-repository agreements
Issues:

- **PREMIS:**
  - Repositories need rights and digiprov at RXP-level
  - Highest unit of description in PREMIS is representation
  - RXP can contain multiple representations
  - RXP more like an Intellectual Entity
  - Asked PREMIS Editorial Committee to consider allowing PREMIS elements to describe Intellectual Entities when applicable
  - TIPR project still using PREMIS for RXPs
Issues:

- Identified need for Inter-repository **Service Agreements (SA):**
  - **SA documents inter-repository relationship:**
    - RXP composition vis-à-vis optional files
    - RXP transfer logistics
    - target repository actions upon RXP receipt
    - inter-repository rights and permissions agreements
    - archiving & preservation treatment at target repository
    - financial arrangements between source and target repositories
    - legal aspects of source and target relationship
Next Steps:

- Run Ring Transfer test
- Exchange sufficiently-varied source-AIPs
- Analyze results
- Refine transfer format
- Communicate findings
Acknowledgements

TIPR is funded by a generous grant from the Institute of Museum and Library Services (IMLS)
Questions?

- Thank you for your time...
**TIPR:** Interchange you can believe in!

http://wiki.fcla.edu:8000/tipr/