1. Progress towards activity targets

The TIPR project is proceeding according to the schedule projected in the grant application, shown in Figure 1 below.

Hire FCLA Programmer: Marly Wilson began work as TIPR project programmer on January 12, 2009.

Publish project website: The TIPR website has been set up as a wiki at http://wiki.fcla.edu/TIPR. Meeting minutes, milestones and work in progress are on the Partner Pages. Specifications and documentation will migrate to the Publications pages when firm enough for public review.

Hold partner meetings: The first partner meeting was held at New York University on November 3-4, 2008, with eight participants attending. The second meeting was held at the Florida Center for Library Automation in Gainesville on February 19, with seven attending. Since the second meeting, partners have also been holding bi-weekly conference calls.

Analyze/spec system changes: In process. This activity is at various stages of completion depending on the partner institution. Also, decisions recently made by the group will require may revision of earlier specifications. Cornell's analysis is somewhat delayed because of their decision to replace aDORe with Fedora as the back-end of their preservation system. They will likely have to customize Ingest depending on the exchange partner and are now investigating Dissemination. NYU will also have to customize Ingest but Dissemination will be straightforward. FCLA has to correct some known problems with its current Dissemination package, but will not require any changes to Ingest.

Spec transfer format & use cases: A draft TIPR specification and some use cases are available on the website. All three partners have produced sample TIPR Exchange Packages for their own data conforming to the specification.

Coding: In process. FCLA can now automatically produce a TIPR exchange package from a DAITSS DIP (Dissemination Information Package).
2. Project Findings and Accomplishments

The major accomplishment of the project so far is the initial definition of a TIPR Exchange Package (TEP). The package can contain one or more representations\(^1\) of an Intellectual Entity\(^2\) (where the granularity of the Intellectual Entity is completely up to the sending repository). For each representation in the TEP, there must be a METS document describing the representation and a PREMIS document with digital provenance information for the representation. The TEP as a whole is described by another METS document identifying the sender, package-level rights, and all representations within the TEP. Finally, the TEP contains a files directory with all content files referenced in the representation level METS documents.

The TEP is predicated on the expectation that repositories will understand METS syntax, the syntax of PREMIS embedded in METS, and the semantics of PREMIS Rights and PREMIS Events (for digital provenance). It does not require syntactical or semantic understanding of object characteristics or format-specific technical metadata, on the assumption that the receiving repository will have its own preferences for the derivation of this information.

Profiles for the two forms of METS documents (for the representation and for the package) have been defined. The METS and PREMIS documents can be validated against their respective schema, and also against Schematron schema developed for the project. (Schematron\(^3\) makes it easier to declare assertions about structure than XML schema language.)

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\(^1\) Defined according to PREMIS.
\(^2\) Defined according to PREMIS.
\(^3\) [http://www.schematron.com/index.html](http://www.schematron.com/index.html)
The draft specification for the TIPR Exchange Package is available on the Partner Pages of the TIPR website, as are the Schematron schema for validating TIPR METS and TIPR PREMIS documents.

For the test exchange stage of the project, partners have agreed to use the BagIt File Package Format (http://www.digitalpreservation.gov/library/resources/tools/docs/bagitspec.pdf) which allows an arbitrary number of TEPs to be bundled for transmission.

3. Other findings

The partners discussed use cases and developed a preliminary set of use cases for testing purposes. However, we have found that defining use cases in terms of the types of content to be exchanged is far less important than defining the context of exchange. We understand that a successful model of repository-to-repository exchange must make the fewest possible assumptions about the policies, architectures or technological capabilities of the sending and receiving repositories. Therefore we have spent considerable time discussing context, in particular:

- what are the likely scenarios requiring exchange?
- what are the likely expectations of repository managers (and of the owners of the content archived in repositories)?
- what structures and semantics can participating repositories be reasonably expected to understand?

The outcomes of these discussions are key to shaping TIPR requirements, and will need to be documented and vetted by the larger community as part of the dissemination phase of this project.

Communication of rights information also emerged as an issue for the wider community. The TEP provides a place for package level information, including rights. However, to our knowledge, there has been no national discussion of rights pertaining to an Archival Information Package transmitted from one repository to another. On the one hand, it seems reasonable to expect a sending repository to want to express its own restrictions on what the receiving repository can do with the package. On the other, from a legal point of view there may be no basis for the sender to assert intellectual property rights other than those that adhere to the content as originally archived. We are seeking clarification of this from legal experts.

Communication of significant properties is an important open issue the project is postponing although we recognize communication and understanding of significant properties is at least as important as rights and digital provenance. In PREMIS 2.0 significant properties are considered a characteristic of an object entity. We are aware of work for the European PLANETS project in which significant characteristics are elevated to an entity type in their own right, and relate to "components." As neither significant characteristics nor components are PREMIS entity types, and as this work is still incomplete, we feel unable to deal with this issue at this time.