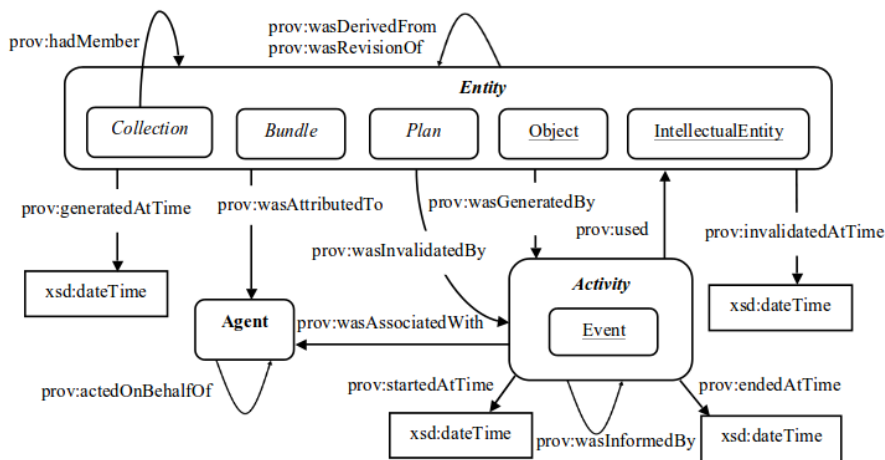


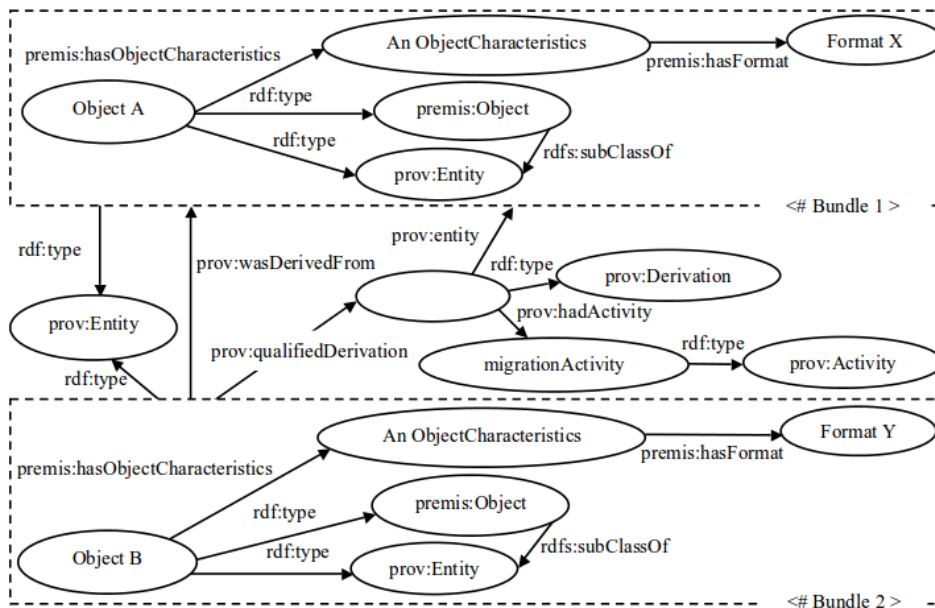
Audit Service PROV-O vs PREMIS

The basic premise of "Provenance Description of Metadata using PROV with PREMIS for Long-term Use of Metadata" is:

- PROV-O and PREMIS should be used in conjunction with each other
- Differences
 - Activity and Event
 - "PREMIS uses preservation-specific value vocabularies defined by Library of Congress."
 - Responsible Agent
 - "In PREMIS, Agent influences Object through Event. That is, Agent is not directly connected to Object as shown in Figure 4. However, PROV allows Agent, Entity and Activity to be related with each other directly."
 - Relationships between Entities and Relationships between Objects
 - "PROV defines relationships between Activities and relationships between Agents, whereas PREMIS does not include those relationships."
 - "PROV is designed for generalized provenance description and interchange among different systems, whereas PREMIS is primarily for preservation metadata description used for digital preservation. The specialized PREMIS terms used to describe preservation could enrich expressive power of PROV."
- Maps basic classes between them
 - *premis:IntellectualEntity* and *premis:Object* are mapped as a subclasses of *prov:Entity*
 - *premis:Event* is mapped as a subclasses of *prov:Activity*
 - *premis:Agent* and *prov:Agent* are "almost" the same, and the relationship can be described using *owl:equivalentClass*
- Proposed model



- Example description using proposed model



PROV-O and PREMIS Class Reference

Authority	Classes
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PROV-O	W3C	• prov:Entity • prov:Activity • prov:Agent
PREMIS	LoC	• premis:Agent • premis:ApplicableDates • premis:Bitstream • premis:ContentLocation • premis:CopyrightInformation • premis:CreatingApplication • premis:Dependency • premis:Environment • premis:Event • premis:EventOutcomeDetail • premis:EventOutcomeInformation • premis:File • premis:Fixity • premis:Format • premis:FormatDesignation • premis:FormatRegistry • premis:Hardware • premis:Identifier • premis:Inhibitors • premis:IntellectualEntity • premis:LicenseInformation • premis:Object • premis:ObjectCharacteristics • premis:PremisEntity • premis:PreservationLevel • premis:RelatedObjectIdentification • premis:Representation • premis:RightsDocumentation • premis:RightsGranted • premis:RightsStatement • premis:Signature • premis:SignificantProperties • premis:Software • premis:StatuteInformation • premis:Storage • premis:TermOfGrant • premis:TermOfRestriction

Current use of PROV-O

PROJECT	DESCRIPTION	PEOPLE	INSTITUTION
Kino	Kino is an integrated suite of tools that enables scientists to...	Amit Sheth, Ajith Ranabahu, Maryam Panahiazar	Ohio Center of Excellence in Knowledge-enabled Computing (Kno.e.sis)
Open PHACTS	Open PHACTS (Open Pharmacological Concepts Triple Store) is a k...		

Source: <http://biportal.bioontology.org/ontologies/PROVO>

PROV-O events vs PREMIS events

The notion of “event” is “not first-class in the PROV-O data model”. However, the principal event-related concept defined in PROV-O, [prov:InstantaneousEvent](#), defined as “an instantaneous event, or event for short, happens in the world and marks a change in the world, in its activities and in its entities”, does seem to be conceptually appropriate for describing Fedora audit events.

In comparison, PREMIS events-related classes are “first class citizens” with adequate granularity for describing Fedora audit events.

PROV-O and PREMIS event-related classes:

PROV-O Events			PREMIS Events		
Class	Sub-classes	Data/Object properties	Class	Sub-classes	Data/Object properties
prov:InstantaneousEvent	prov:Generation prov:Start prov:Invalidation prov:End prov:Usage	prov:atTime prov:hadRole prov:atLocation	premis:Event		premis:hasEventRelatedAgent premis:hasEventRelatedObject premis:hasEventOutcomeInformation premis:hasEventType

Strawman Examples

flat

```
<premisobject> a prov:InstantaneousEvent
<premis:hasEventType> http://id.loc.gov/vocabulary/preservationEvents/fixityCheck
<premis:hasEventRelatedAgent> "fedoraUser"^^xsd:string
<prov:atTime> "2012-04-30T20:40:40"^^xsd:dateTime
<premis:EventOutcomeInformation> "cf23df2207d99a74fbe169e3eba035e633b65d94"^^xsd:string
<premis:EventOutcomeDetail> "SHA1"^^xsd:string
```

nested

```
<apremiseventobject> a prov:InstantaneousEvent
<premis:hasEventType> http://id.loc.gov/vocabulary/preservationEvents/fixityCheck
<premis:hasEventRelatedAgent> <premis:agent>
<prov:atTime> "2012-04-30T20:40:40"^^xsd:dateTime
<premis:hasFixity> <premis:Fixity>

<apremisagent> a premis:Agent
<foaf:name> "Joe User"^^xsd:String

<apremisfixity> a premis:Fixity
<premis:hasMessageDigest> "cf23df2207d99a74fbe169e3eba035e633b65d94"^^xsd:string
<premis:hasMessageDigestAlgorithm> "SHA1"^^xsd:string
```