Audit Service Repository Events and Agents

Events

Types of events in the lifecycle of repository objects, drawn from the PREMIS Event Type vocabulary and augmented with some other event types identified by UCSD. Some of these events correspond to actions performed by the Fedora 4 REST API, while others correspond to actions performed with other systems outside of the repository. Many of the external events (e.g., compression, decompression, decryption, migration, normalization, etc.) might be followed by an internal event (content modification, metadata modification) that saves the output of the process in the repository.

Event Type	Vocabulary	Internal/ External	Description
capture	PREMIS	external	The process whereby a repository actively obtains an object.
compression	PREMIS	external	The process of coding data to save storage space or transmission time.
creation	PREMIS	internal	The act of creating a new object.
deaccession	PREMIS	external	The process of removing an object from the inventory of a repository.
decompression	PREMIS	external	The process of reversing the effects of compression.
decryption	PREMIS	external	The process of converting encrypted data to plain text.
deletion	PREMIS	internal	The process of removing an object from repository storage.
digital signature validation	PREMIS	external	The process of determining that a decrypted digital signature matches an expected value.
fixity check	PREMIS	both	The process of verifying that an object has not been changed in a given period.
ingestion	PREMIS	internal	The process of adding objects to a preservation repository.
message digest calculation	PREMIS	external	The process by which a message digest ("hash") is created • In Fedora 4, this is done automatically when a non-RDF resource is created, which probably doesn't merit a separate event. However, message digest calculation can also be done externally before uploading content (to use the message digest to verify uncorrupted transfer), which would be a separate event.
migration	PREMIS	external	A transformation of an object creating a version in a more contemporary format.
normalization	PREMIS	external	A transformation of an object creating a version more conducive to preservation.
replication	PREMIS	external	The process of creating a copy of an object that is, bit-wise, identical to the original.
validation	PREMIS	external	The process of comparing an object with a standard and noting compliance or exceptions.
virus check	PREMIS	external	The process of scanning a file for malicious programs.
metadata modification	UCSD	internal	Modifying an RDF source by posting RDF, using SPARQL Update, etc.
content modification	UCSD	internal	Modifying a non-RDF source by uploading updated content.
content removal	UCSD	internal	Removing a non-RDF source from the repository.
~~derivative creation~~	~~UCSD~~	~~external~~	~~Generating derivative versions of content files.~~
~~indexing~~	~~UCSD~~	~~external~~	~~Generating a derivative of an object, such as a Solr index record, updating an external triplestore, etc. possibly using the fcrepo-camel or fcrepo-message-consumer components.~~

New Types

We are proposing four event types not in PREMIS, and also a distinction between internal and external events. The event types are defined as skos: Concept instances in the PREMIS eventType scheme following the requirements of the PREMIS ontology. Below are the URIs and types for these new concepts:

URI	Types

http://fedora.info/definitions/v4/audit#ExternalEvent	owl:Class
http://fedora.info/definitions/v4/audit#InternalEvent	owl:Class
http://fedora.info/definitions/v4/audit#contentModification	owl:NamedIndividual skos:Concept
http://fedora.info/definitions/v4/audit#derivativeCreation	owl:NamedIndividual skos:Concept
http://fedora.info/definitions/v4/audit#indexing	owl:NamedIndividual skos:Concept
http://fedora.info/definitions/v4/audit#metadataModification	owl:NamedIndividual skos:Concept

Agents

Description of the kinds of agents that could be recorded for audit events.

- People
    - The user operating the software, such as the user uploading a file to the repository.
    - When the user is acting on behalf of someone else, the person who directed the action, such as the original contributor of a proxy-deposited item.
- Organizations
    - The organization responsible for providing a service, such as running another repository that content is replicated to.
- Hardware
    - The systems used to perform an action, such as processing machines for generating derivatives or verifying checksums.
- Software
    - The software interacting with Fedora 4.
    - Other tool(s) used in the process, such as the virus scanning software used to perform a virus check.