PREMIS implementation in pre-ingestion workflow

Angela Di Iorio

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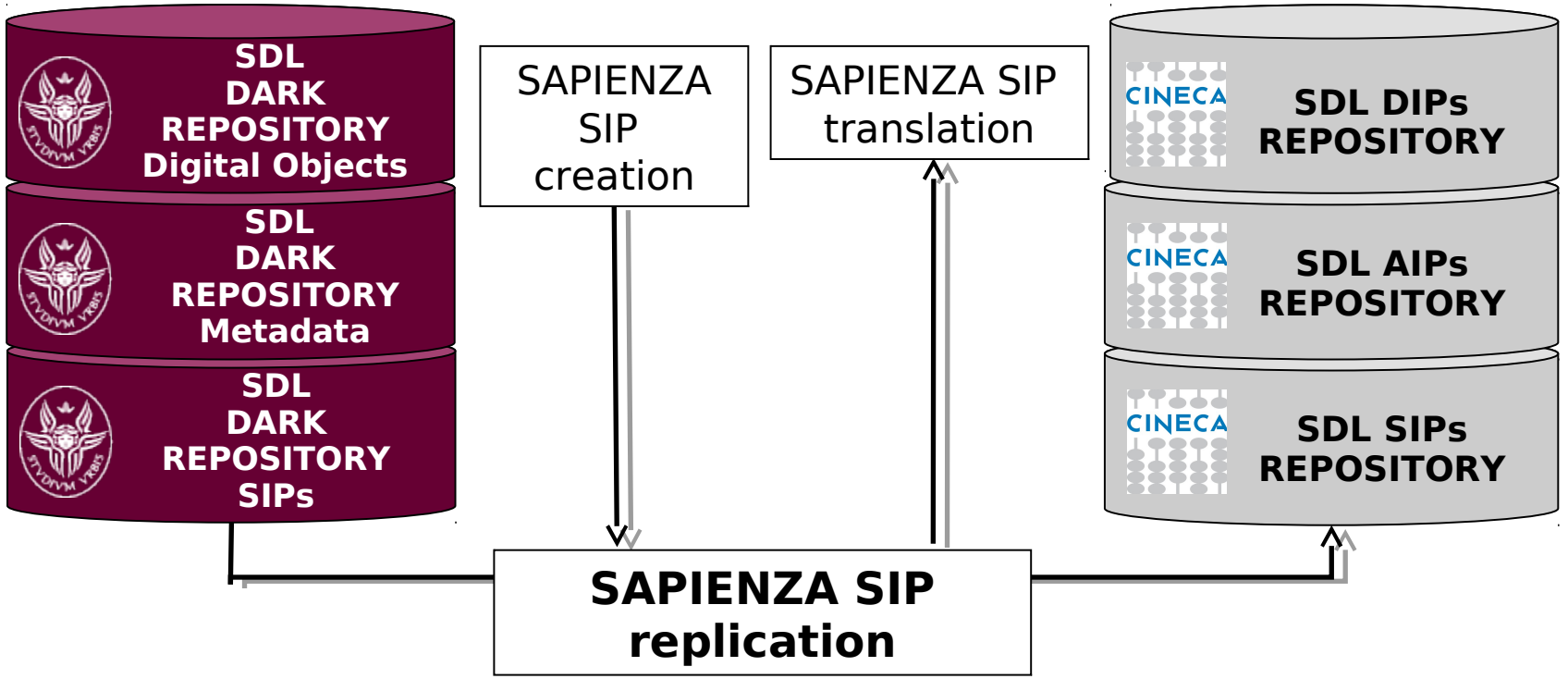
Long Term Digital Preservation strategy

Screenshot of the portal prototype

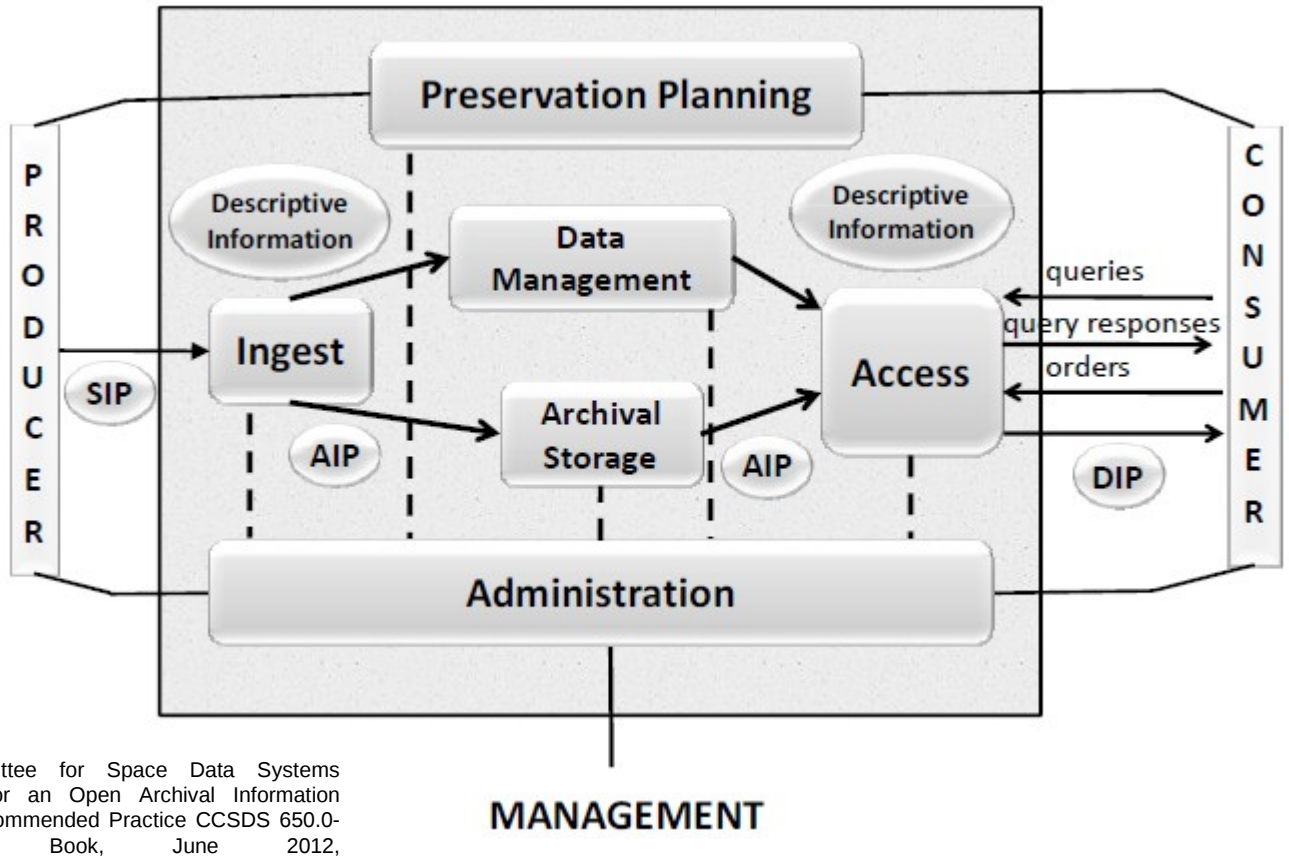
Long Term Digital Preservation strategy

Rome geographically dispersed replicated storage space **Bologna**



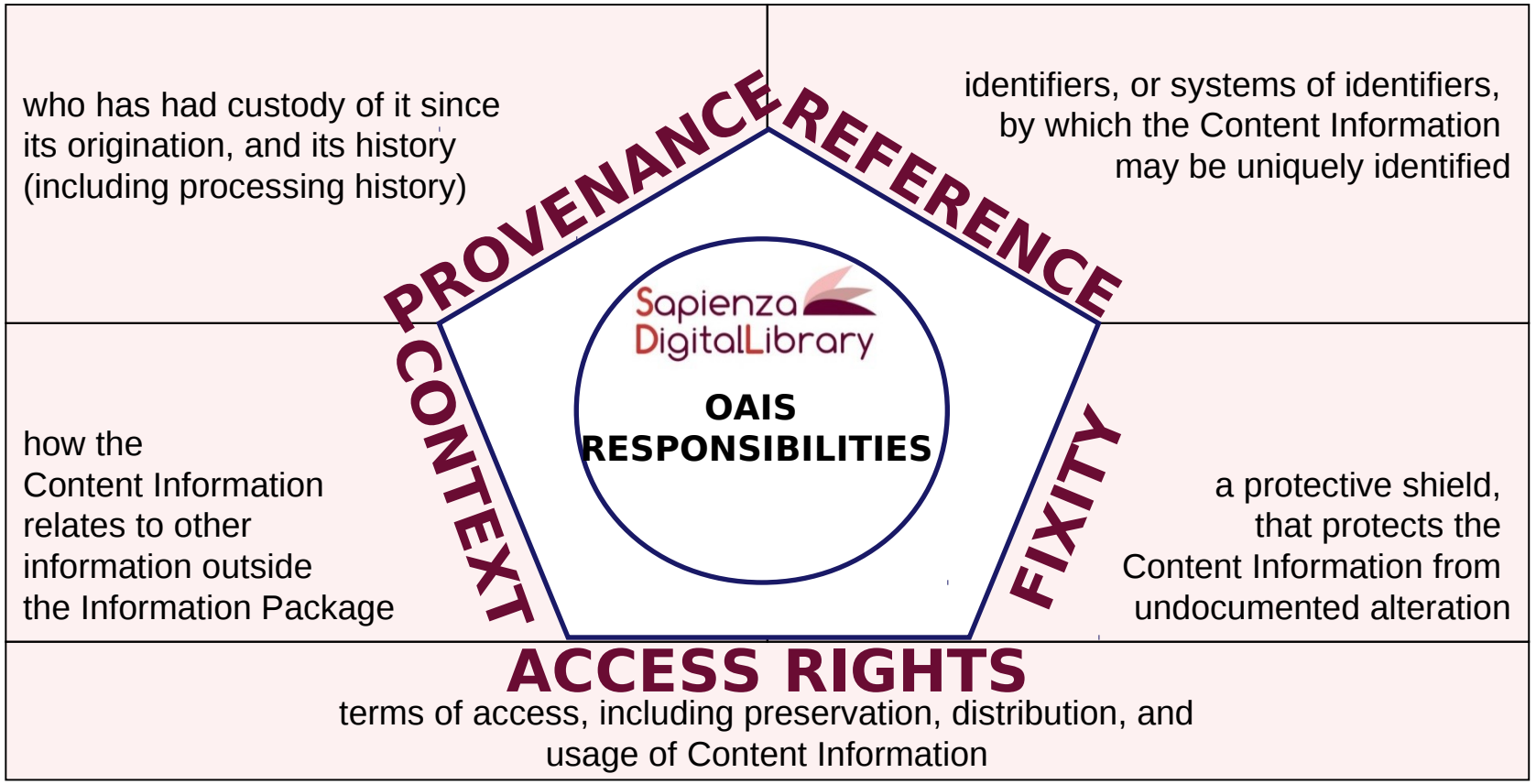
The bible

Open Archival Information System



Consultative Committee for Space Data Systems Reference Model for an Open Archival Information System (OAIS), Recommended Practice CCSDS 650.0-M-2 Magenta Book, June 2012, http://public.ccsds.org/publications/archive/652x0m1.pdf

… OAIS responsibilities



a. Di Iorio, m.Schaerf, M. Guercio, et al., „A digital infrastructure for trustworthiness The Sapienza Digital Library experience“, will be published in Springer LNCS Volume Number: 385: Bridging between Cultural Heritage Institutions -- Proceedings of the 9th Italian Research Conference on Digital Libraries (IRCDL 2013)

PREMIS conformance? First requirement

1.1 objectIdentifier (M, R)
- 1.1.1 objectIdentifierType (M, NR)
- 1.1.2 objectIdentifierValue (M, NR)

1.2 objectCategory (M, NR)

1.3 preservationLevel (O, R) [representation, file]
- 1.3.1 preservationLevelValue (M, NR) [representation, file]
- 1.3.2 preservationLevelRole (O, NR) [representation, file]
- 1.3.3 preservationLevelRationale (O, R) [representation, file]
- 1.3.4 preservationLevelDateAssigned (O, NR) [representation, file]

1.4 significantProperties (O, R)
- 1.4.1 significantPropertiesType (O, NR)
- 1.4.2 significantPropertiesValue (O, NR)
- 1.4.3 significantPropertiesExtension (O, R)

1.5 objectCharacteristics (M, R) [file, bitstream]
- 1.5.1 compositionLevel (M, NR) [file, bitstream]
- 1.5.2 fixity (O, R) [file, bitstream]
  - 1.5.2.1 messageDigestAlgorithm (M, NR) [file, bitstream]
  - 1.5.2.2 messageDigest (M, NR) [file, bitstream]
  - 1.5.2.3 messageDigestOriginator (O, NR) [file, bitstream]
- 1.5.3 size (O, NR) [file, bitstream]
- 1.5.4 format (M, R) [file, bitstream]
  - 1.5.4.1 formatDesignation (O, NR) [file, bitstream]
    - 1.5.4.1.1 formatName (M, NR) [file, bitstream]
    - 1.5.4.1.2 formatVersion (O, NR) [file, bitstream]
  - 1.5.4.2 formatRegistry (O, NR) [file, bitstream]
    - 1.5.4.2.1 formatRegistryName (M, NR) [file, bitstream]
    - 1.5.4.2.2 formatRegistryKey (M, NR) [file, bitstream]
    - 1.5.4.2.3 formatRegistryRole (O, NR) [file, bitstream]
  - 1.5.4.3 formatNote (O, R) [file, bitstream]

1.5.5 creatingApplication (O, NR) [file, bitstream]
- 1.5.5.1 creatingApplicationName (O, NR) [file, bitstream]
- 1.5.5.2 creatingApplicationVersion (O, NR) [file, bitstream]
- 1.5.5.3 dateCreatedByApplication (O, NR) [file, bitstream]
- 1.5.5.4 creatingApplicationExtension (O, R) [file, bitstream]

1.5.6 inhibitors (O, R) [file, bitstream]
- 1.5.6.1 inhibitorType (M, NR) [file, bitstream]
- 1.5.6.2 inhibitorTarget (O, R) [file, bitstream]
- 1.5.6.3 inhibitorKey (O, NR) [file, bitstream]

1.5.7 objectCharacteristicsExtension (O, R) [file, bitstream]

1.6 originalName (O, NR) [representation, file]

1.7 storage (O, R) [file, bitstream]
- 1.7.1 contentLocation (O, NR) [file, bitstream]
  - 1.7.1.1 contentLocationType (M, NR) [file, bitstream]
  - 1.7.1.2 contentLocationValue (M, NR) [file, bitstream]
- 1.7.2 storageMedium (O, NR) [file, bitstream]

1.8 environment (O, R)
- 1.8.1 environmentCharacteristic (O, NR)
- 1.8.2 environmentPurpose (O, R)
- 1.8.3 environmentNote (O, R)
- 1.8.4 dependency (O, R)
  - 1.8.4.1 dependencyName (O, R)
  - 1.8.4.2 dependencyIdentifier (O, R)
    - 1.8.4.2.1 dependencyIdentifierType (M, NR)
    - 1.8.4.2.2 dependencyIdentifierValue (M, NR)
- 1.8.5 software (O, R)
  - 1.8.5.1 swName (M, NR)
  - 1.8.5.2 swVersion (O, NR)
  - 1.8.5.3 swType (M, NR)
  - 1.8.5.4 swOtherInformation (O, R)
  - 1.8.5.5 swDependency (O, R)
- 1.8.6 hardware (O, R)
  - 1.8.6.1 hwName (M, NR)
  - 1.8.6.2 hwType (M, NR)
  - 1.8.6.3 hwOtherInformation (O, R)
- 1.8.7 environmentExtension (O, R)

1.9 signatureInformation (O, R) [file, bitstream]
- 1.9.1 signature (O, R)
  - 1.9.1.1 signatureEncoding (M, NR) [file, bitstream]
  - 1.9.1.2 signer (O, NR) [file, bitstream]
  - 1.9.1.3 signatureMethod (M, NR) [file, bitstream]
  - 1.9.1.4 signatureValue (M, NR) [file, bitstream]
  - 1.9.1.5 signatureValidationRules (M, NR) [file, bitstream]
  - 1.9.1.6 signatureProperties (O, R) [file, bitstream]
  - 1.9.1.7 keyInformation (O, NR) [file, bitstream]
- 1.9.2 signatureInformationExtension (O, R) [file, bitstream]

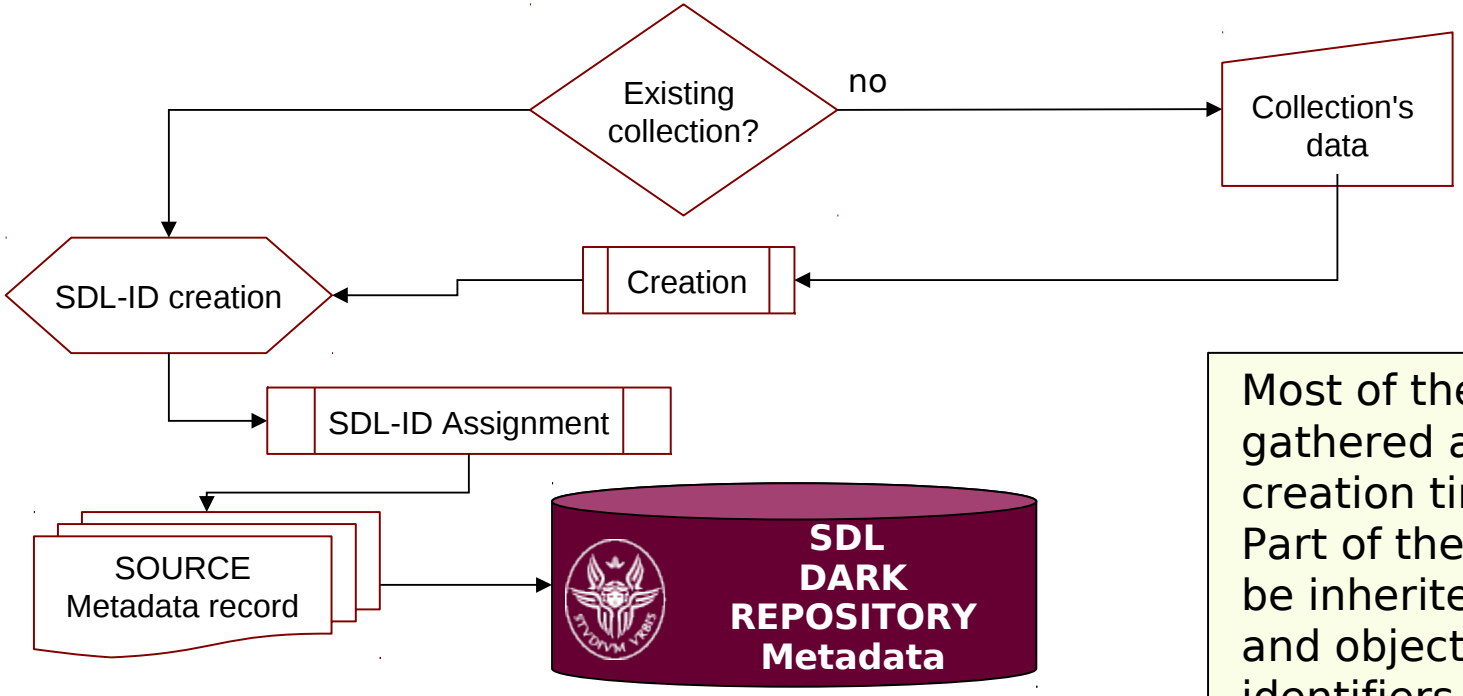
1.10 relationship (O, R)
- 1.10.1 relationshipType (M, NR)
- 1.10.2 relationshipSubType (M, NR)
- 1.10.3 relatedObjectIdentification (M, R)
  - 1.10.3.1 relatedObjectIdentifierType (M, NR)
  - 1.10.3.2 relatedObjectIdentifierValue (M, NR)
  - 1.10.3.3 relatedObjectSequence (O, NR)
- 1.10.4 relatedEventIdentification (O, R)
  - 1.10.4.1 relatedEventIdentifierType (M, NR)
  - 1.10.4.2 relatedEventIdentifierValue (M, NR)
  - 1.10.4.3 relatedEventSequence (O, NR)

1.11 linkingEventIdentifier (O, R)
- 1.11.1 linkingEventIdentifierType (M, NR)
- 1.11.2 linkingEventIdentifierValue (M, NR)

1.12 linkingIntellectualEntityIdentifier (O, R)
- 1.12.1 linkingIntellectualEntityIdentifierType (M, NR)
- 1.12.2 linkingIntellectualEntityIdentifierValue (M, NR)

1.13 linkingRightsStatementIdentifier (O, R)
- 1.13.1 linkingRightsStatementIdentifierType (M, NR)
- 1.13.2 linkingRightsStatementIdentifierValue (M, NR)

Collection aware workflow



Most of the information is gathered at the collection creation time.
Part of the information will be inherited by resources and objects: ENTITYs' identifiers family, common RIGHTS references, information about Provenance

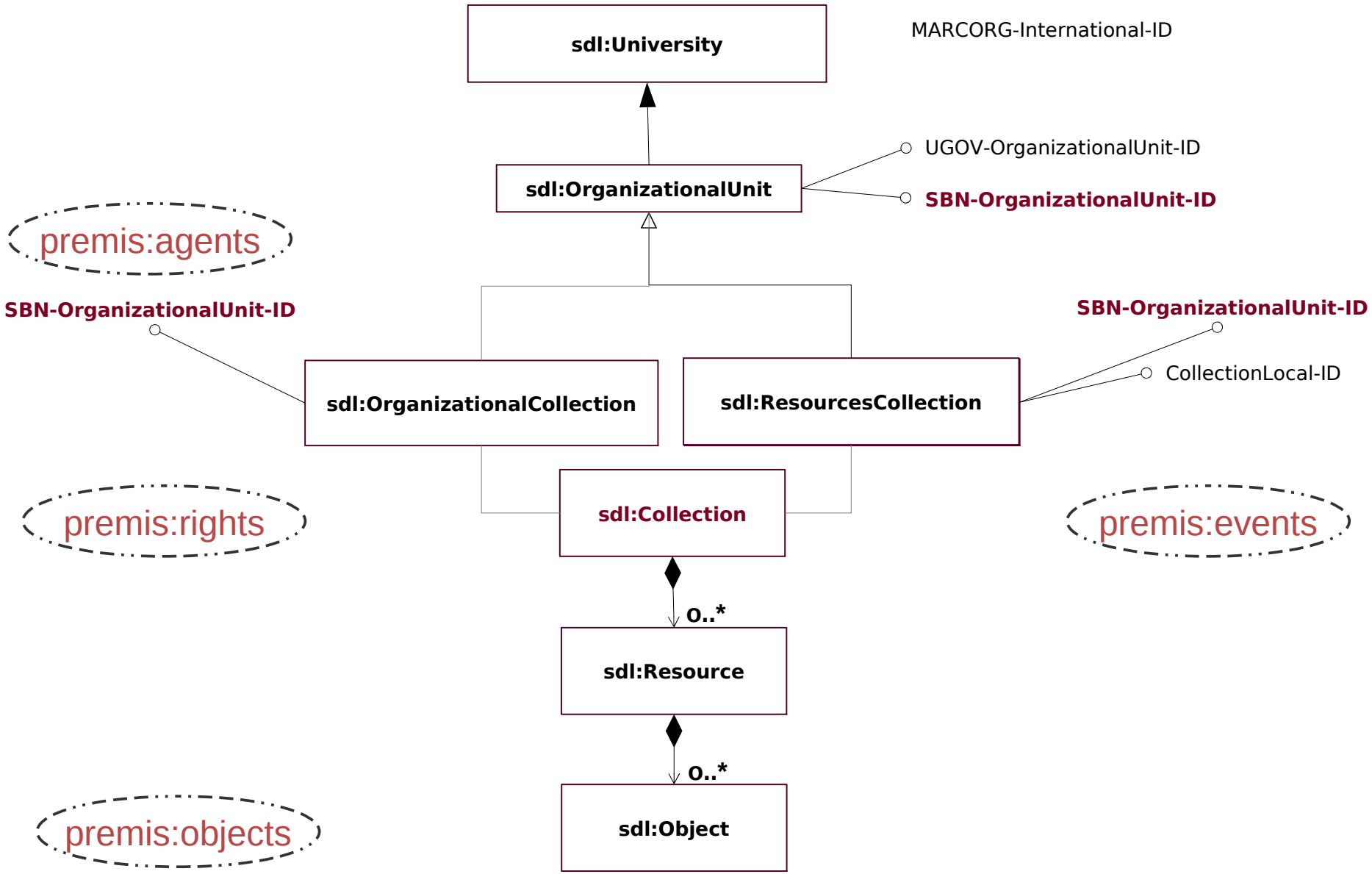
licenseInformation-nr
licenseDocumentationIdentifierType-r
licenseDocumentationIdentifierValue-r
licenseDocumentationRole-r[nr]
licenseTerms-nr
licenseNote-nr
licenseApplicableStartDate-nr
licenseApplicableEndDate-nr

statuteJurisdiction*nr
statuteCitation*nr
statuteInformationDeterminationDate-nr
statuteNote-r
statuteDocumentationIdentifierType-r
statuteDocumentationIdentifierValue-r
statuteDocumentationRole-r[nr]
statuteApplicableStartDate-nr
statuteApplicableEndDate-nr

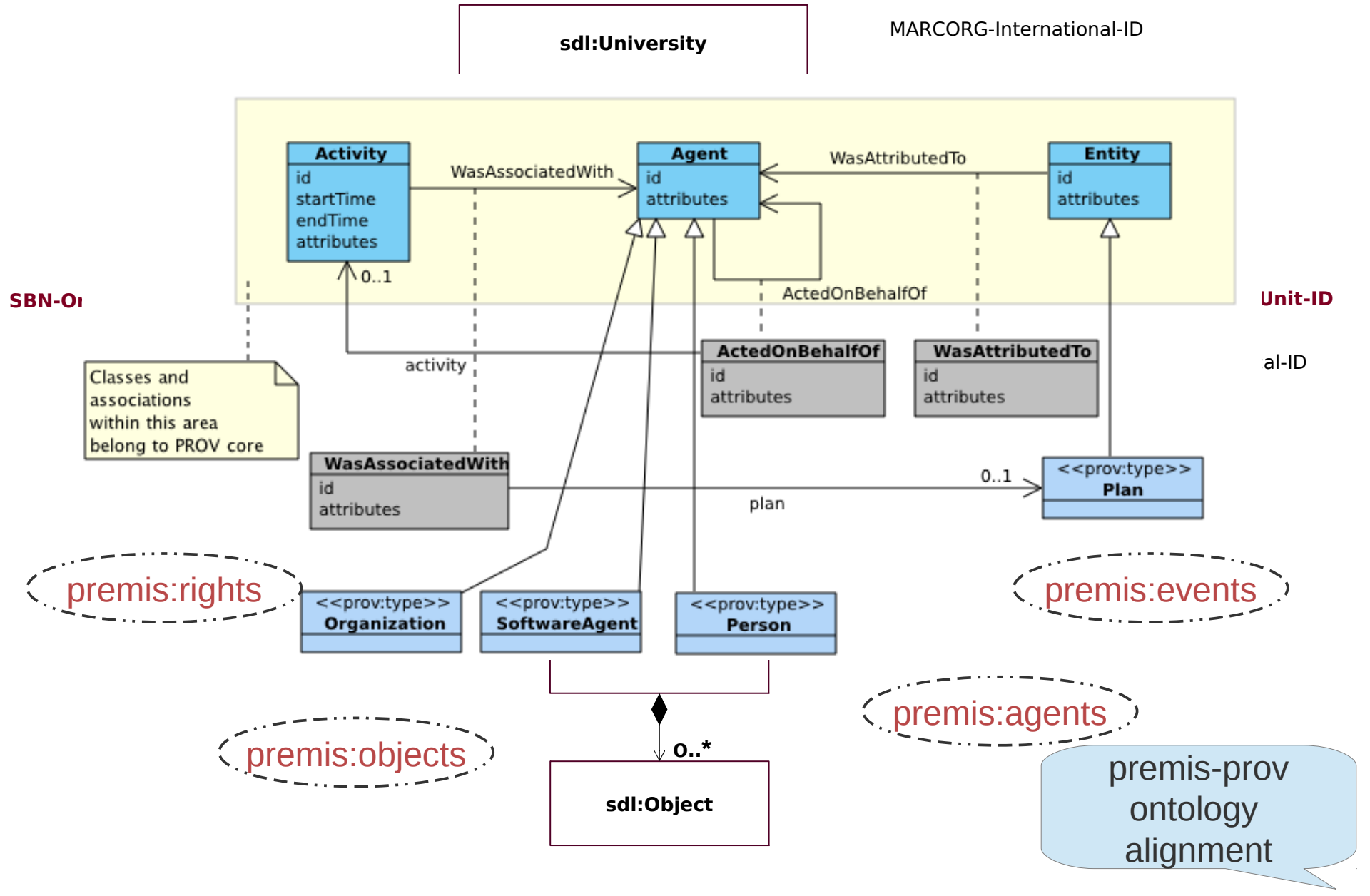
copyrightStatus-nr
copyrightJurisdiction*nr
copyrightStatusDeterminationDate-nr
copyrightNote-r
copyrightDocumentationIdentifierType-r
copyrightDocumentationIdentifierValue-r
copyrightDocumentationRole-r[nr]
copyrightApplicableStartDate-nr
copyrightApplicableEndDate-nr

otherRightsDocumentationIdentifierType*nr
otherRightsDocumentationIdentifierValue*nr
otherRightsDocumentationRole-nr
otherRightsBasis*nr
otherRightsApplicableStartDate-nr
otherRightsApplicableEndDate-nr
otherRightsNote-r

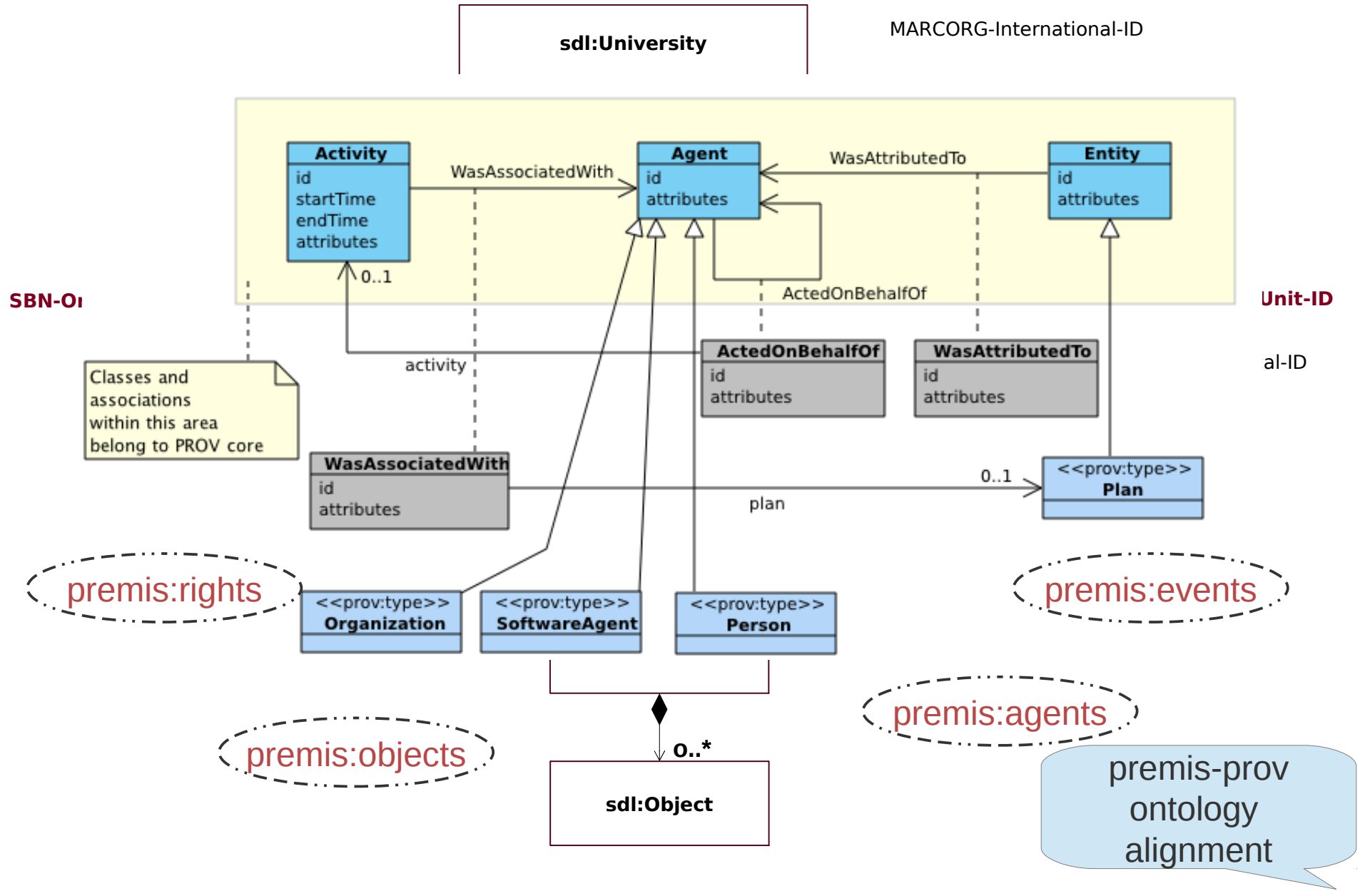
Digital Provenance Knowledge Base



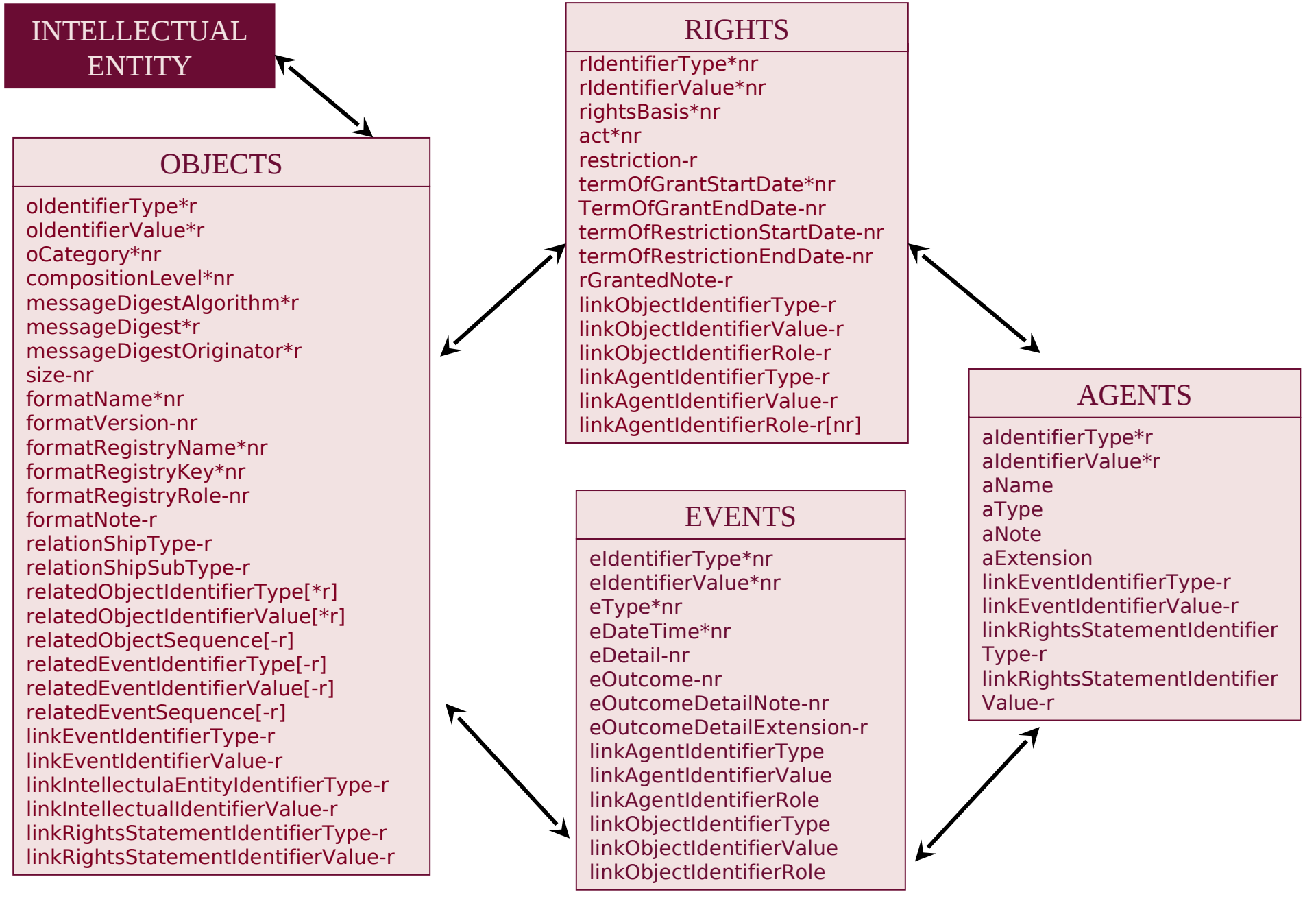
Digital Provenance Knowledge Base



Digital Provenance Knowledge Base



Devicing a DB from the PREMIS data model



Collection aware workflow

… which means, by the system point of view

«conditio sine qua non»

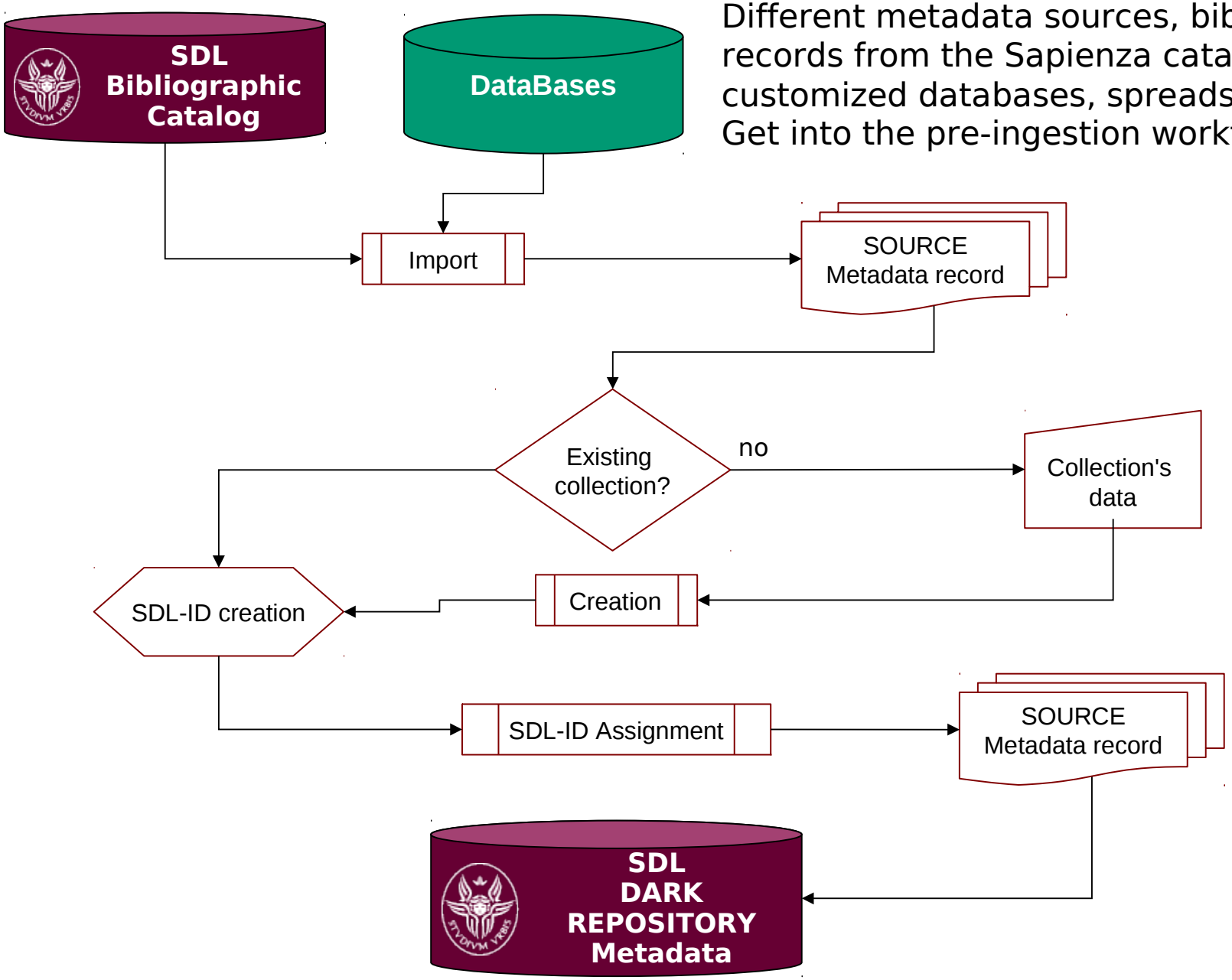
- The submission of resources depends on the collection existence strictly connected to its Provenance

«conditio sine qua non»

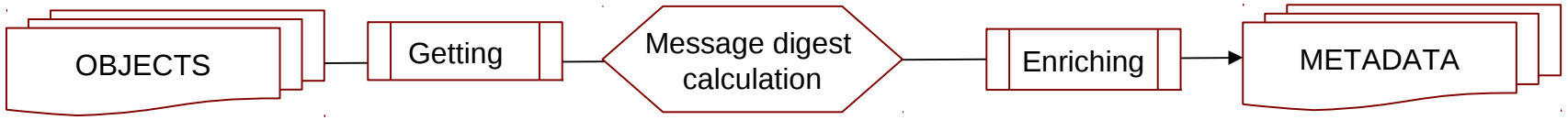
- A digital object must belong to a well identified resource described by metadata (IE,objects,agents, events, rights)

Digital materials preparation

Different metadata sources, bibliographic records from the Sapienza catalog or customized databases, spreadsheets...
Get into the pre-ingestion workflow

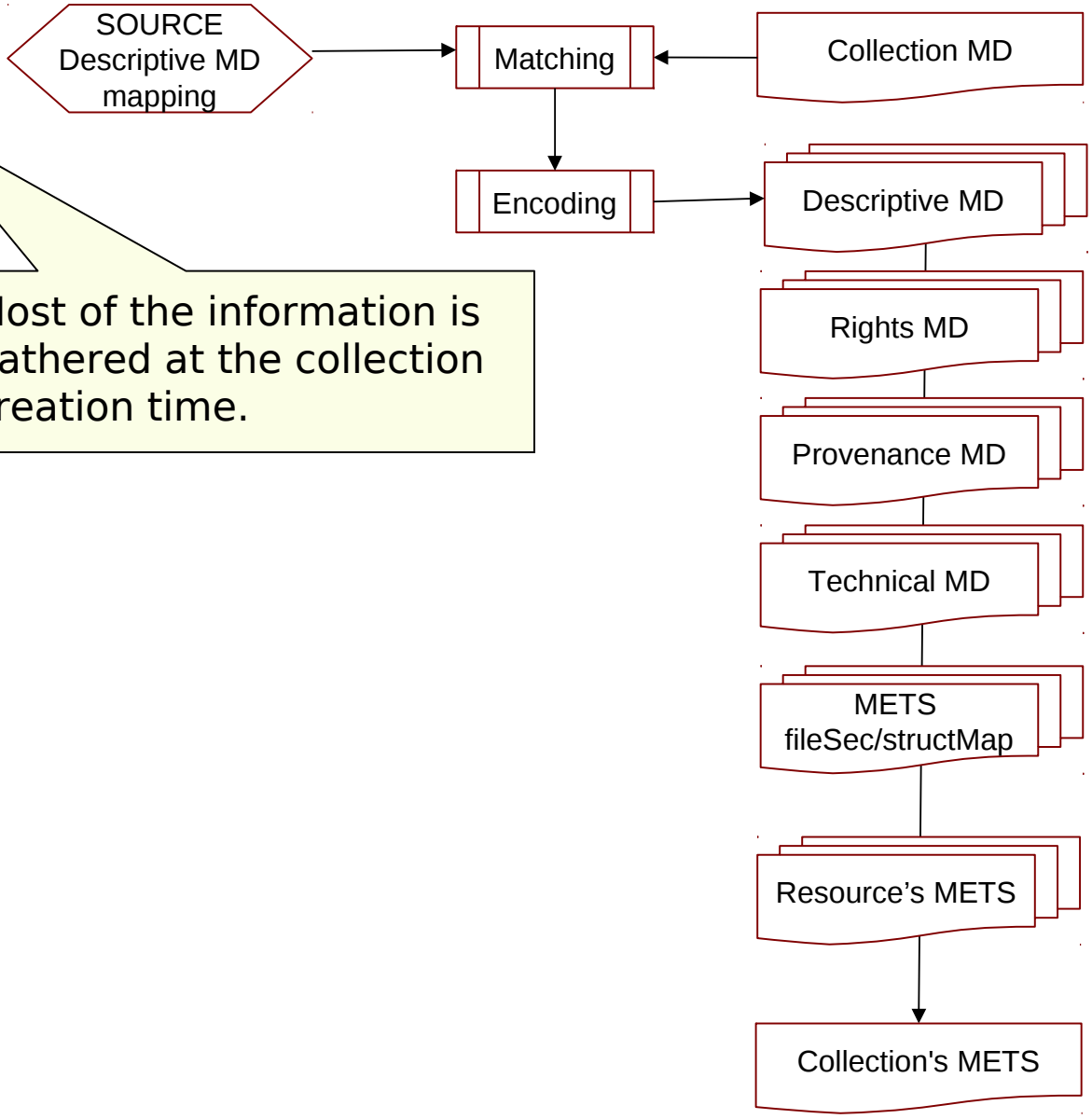


Getting objects information




```
▼<premis:ObjectIdentifier>
   <premis:objectIdentifierType>Sapienza Digital Library accession system</premis:objectIdentifierType>
   <premis:objectIdentifierValue>RMS45/RMS45_00000001/JPEG/RMS45_00000001_0001.jpg</premis:objectIdentifierValue>
  </premis:ObjectIdentifier>
  <premis:fileSize>2260142</premis:fileSize>
▼<premis:FormatDesignation>
   <premis:formatName>jpg</premis:formatName>
   <premis:formatVersion>-</premis:formatVersion>
  </premis:FormatDesignation>
▼<premis:FormatRegistry>
   <premis:formatRegistryName>PRONOM</premis:formatRegistryName>
   <premis:formatRegistryKey>fmt/42</premis:formatRegistryKey>
  </premis:FormatRegistry>
▼<premis:Fixity>
   <premis:messageDigestAlgorithm>MD5</premis:messageDigestAlgorithm>
   <premis:messageDigest>6c78cb2a5953331d60f912a2601fa03d</premis:messageDigest>
   <premis:messageDigestOriginator>PHP 5.2.10 function</premis:messageDigestOriginator>
  </premis:Fixity>
▼<premis:Fixity>
   <premis:messageDigestAlgorithm>SHA-1</premis:messageDigestAlgorithm>
   <premis:messageDigest>b41f4678628d470dcd3ab33a71f27b4c461e4aa8</premis:messageDigest>
   <premis:messageDigestOriginator>PHP 5.2.10 function</premis:messageDigestOriginator>
  </premis:Fixity>
▼<premis:Fixity>
   <premis:messageDigestAlgorithm>CRC32</premis:messageDigestAlgorithm>
   <premis:messageDigest>-559115941</premis:messageDigest>
   <premis:messageDigestOriginator>PHP 5.2.10 function</premis:messageDigestOriginator>
  </premis:Fixity>
</premis:BasicDigitalObjectInformation>
```

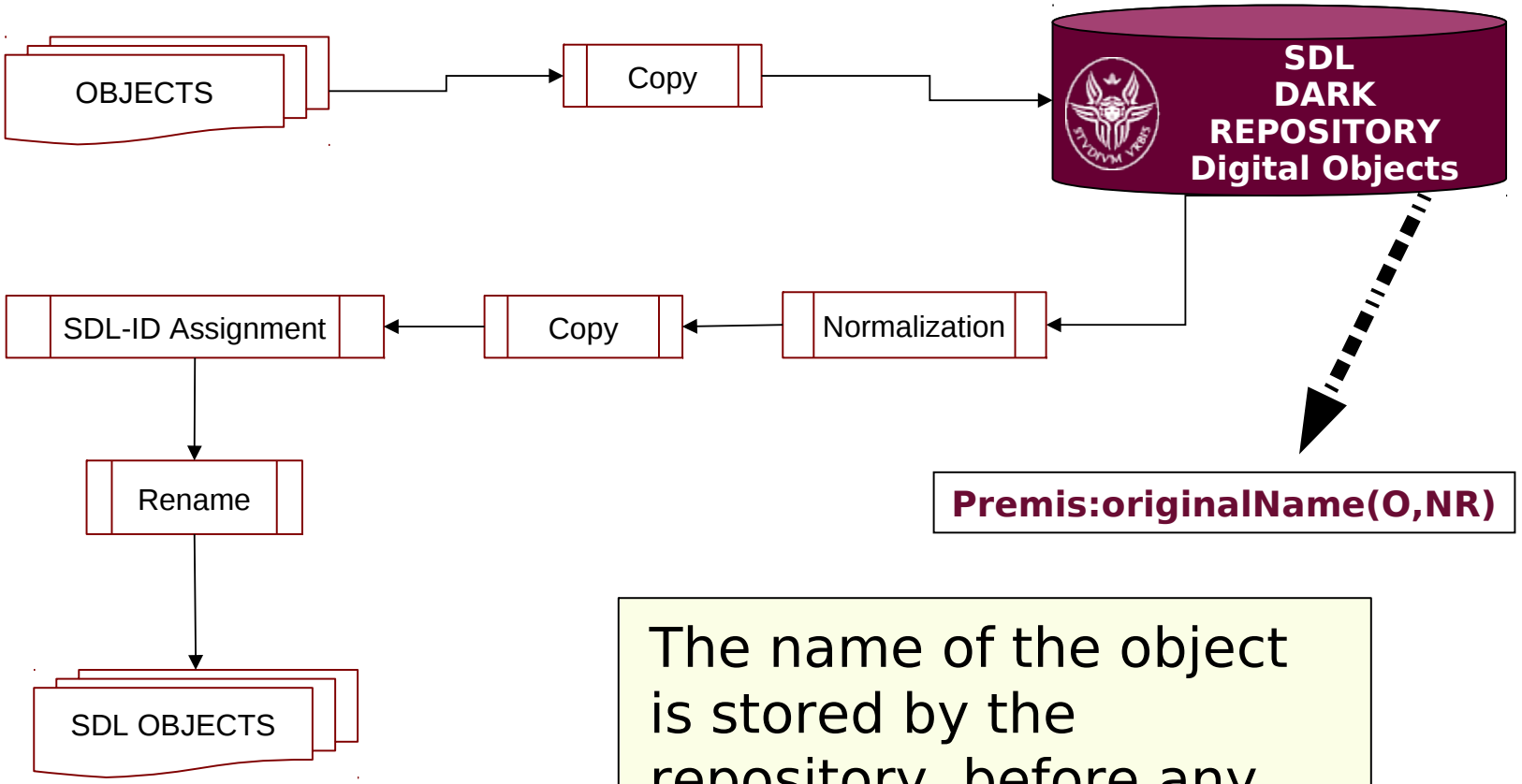
Resources' metadata creation



Most of the information is gathered at the collection creation time.

.....It results also in automatic building of the relations between the objects->resources->collections

Gathering objects information



The name of the object is stored by the repository, before any action of renaming

PREMIS enrichment of SIPs

METSs

premis:objectCategory = representation

premis:objectCategory = file

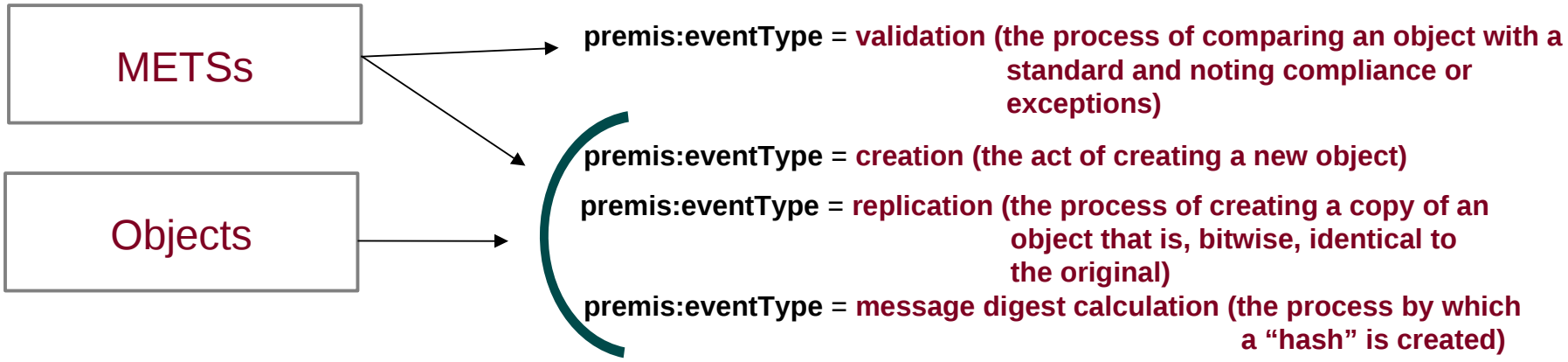
Objects

premis:objectCategory = file

premis:compositionLevel = 0

ZIPs

premis:compositionLevel = 1



premis:linkingAgentRole = authorizer, implementer, validator, executing program

premis:linkingObjectRole = source, outcome

PREMIS enrichment of SIPs

premis:messageDigestAlgorithm = MD5
premis:messageDigestAlgorithm = SHA-1
premis:messageDigestAlgorithm = CRC32

premis:formatNote = format not validated

premis:agentType = organization
premis:agentType = person
premis:agentType = software

premis:rightsBasis = copyright
premis:copyrightStatus = copyrighted (under copyright)
premis:copyrightStatus = public domain (in the public domain)
premis:copyrightStatus = unknown (copyright status of the resource is unknown)
premis:copyrightDocumentationIdentifier = link alla legge diritto d'autore

premis:rightsBasis = license
premis:licenseDocumentationIdentifier = identificativo accordo sapienza-cineca, digilab-siae, sapienza-rightsHolder
premis:licenseDocumentationRole = preservation repository-committor,
committor-national authority, committor-rightsHolder

premis:rightsBasis = statute
premis:statuteDocumentationIdentifier = link alla delibera senato accademico (institutional policies)

premis:linkingAgentRole = contact, creator, publisher, rightsholder, grantor
premis:linkingObjectRole = owned, created, held, preserved???

This is the end…

But hopefully…
never Ending Preservation Care…

MANY THANKS, for you kind attention

Question time ?