europeana foundation

TECHNICAL DOCUMENTATION

EDM profile for Annotations

Modelling Annotations for Application Scenarios (part II)

Editorial note: this profile is currently split into three documents for the time being to make it easier to share and discuss, but will be merged upon its public release!

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3. Modelling annotations for specific application scenarios

This section gathers application scenarios taken from projects related to Europeana and provides recommendations on how annotations should be represented and exchanged between the tools employed in these projects and the Europeana core service.

WA is defined using the RDF data model and can therefore be serialised in any RDF format. The W3C specification recommends the use of JSON-LD as preferred serialisation format and provides a JSON-LD context[1], which is also used in this document (see the example below). For the sake of brevity the following examples are shortened to show only the most relevant data, in particular, we omit most provenance information, i.e. the `creator` and `generator` fields and the corresponding dates, as well as the `type`, `id`, and (JSON-LD) `context`.

Example 1: A complete annotation for the simple tagging use case represented in the JSON-LD format.

```
{
  "@context": "http://www.w3.org/ns/anno.jsonld",
  "id": "http://data.europeana.eu/annotations/1",
  "type": "Annotation",
  "created": "2015-03-10T14:08:07Z",
  "creator": {
    "type": "Person",
    "name": "John Smith"
  },
  "generated": "2015-04-01T09:00:00Z",
  "generator": {
    "type": "Software",
    "name": "HistoryPin",
    "homepage": "https://www.historypin.org/"
  },
  "motivation": "tagging",
  "bodyValue": "MyTag",
  "target": "http://data.europeana.eu/item/09102/_UEDIN_214"
}
```

[1] http://www.w3.org/TR/annotation-model/#json-ld-context

3.1. Annotating a CHO

In all these scenarios, the URI of the ProvidedCHO being annotated must appear as the target of the annotation.

3.1.1. Annotate a CHO with a simple tag

Use case: An end-user wishes to tag a CHO using an unlocalized text literal.

The following modelling guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `oa:tagging;`
- An `oa:bodyValue` property MUST exist and be filled with a plain literal expressing the tag. The text of the tag MUST be short, preferably containing just a single word or expression.

Note: It is recommended that the language is indicated for simple tags. If that is the case then the scenario described in Section 3.1.2 MUST be followed.

Example 2: An annotation expressing a simple tag to a CHO with the text “MyTag”.

```
{
  "motivation": "tagging",
  "bodyValue": "MyTag",
  "target": "http://data.europeana.eu/item/09102/_UEDIN_214"
}
```

3.1.2. Annotate a CHO with a language-specific tag

Use case: An end-user wishes to tag a CHO using a text literal, expressed in a specific language.

The following modelling guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `oa:tagging`.
- The `oa:body` property MUST exist and refer to a resource of type `oa:TextualBody`.
- The tag MUST be defined within the `oa:TextualBody` resource as the literal value of the `rdf:value` property. The text MUST be short, preferably containing just a single word or expression.
- The language of the tag MUST be indicated using the `dc:language` property within the `oa:TextualBody` resource, otherwise the scenario explained in Section 3.1.1 SHOULD be followed.

Example 3: An annotation expressing a simple tag to a CHO with the text “MyTag” defined as English.

```
{
  "motivation": "tagging",
```

```
  "body": {
    "type": "TextualBody",
    "value": "MyTag",
    "language": "en"
  },
  "target": "http://data.europeana.eu/item/09102/_UEDIN_214"
}
```

3.1.3. Annotate a CHO with a semantic tag

Use Case: An end-user wishes to annotate a CHO using a tag corresponding to a resource from a controlled vocabulary.

The following modelling guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `oa:tagging`.
- The `oa:body` property MUST exist and refer to a machine interpretable resource from a controlled vocabulary (e.g., DBpedia, Wikidata, Geonames).

Note: It is not necessary to supply the full description of the resource; its URI is sufficient.

Example 4: An annotation expressing a tag to a CHO with a Geonames resource for the city of Paris.

```
{
  "motivation": "tagging",
  "body": "http://sws.geonames.org/2988507",
  "target": "http://data.europeana.eu/item/09102/_UEDIN_214"
}
```

3.1.4. Annotate a CHO with a geospatial tag

Use case: An end-user wishes to annotate a CHO with a location given in geospatial coordinates (latitude, longitude, and optionally altitude). In addition, the user may wish to indicate a label expressing the name or address of the location.

The following modelling guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `oa:tagging`.
- The `oa:body` property MUST exist and refer to a resource of type `edm:Place`, following the EDM guidelines for Places[2]. Some of the properties that can be used are: latitude (`wgs84_pos:lat`); longitude (`wgs84_pos:long`); altitude (`wgs84_pos:alt`); labels (`skos:prefLabel` or `skos:altLabel` when appropriate). Whenever possible, labels SHOULD be set with their respective language. The `wgs` properties MUST NOT be set with a datatype as defined in their specification[3].

[2] http://pro.europeana.eu/files/Europeana_Professional/Share_your_data/Technical_requirements/EDM_Documentation/EDM_Mapping_Guidelines_v2.2.pdf

[3] https://www.w3.org/2003/01/geo/

At the moment, EDM does not define properties that can express a geographical shape for a location, only the exact coordinate position.

Example 5: An annotation expressing a tag with geospatial information for a CHO.

```
{
  "motivation": "tagging",
  "body": {
    "@context": "http://www.europeana.eu/schemas/context/entity.jsonld",
    "type": "Place",
    "prefLabel": {
      "en": "A label for the location, e.g., an address or place name"
    },
    "lat": "48.85341",
    "long": "2.3488"
  },
  "target": "http://data.europeana.eu/item/09102/_UEDIN_214"
}
```

3.2. Link a CHO to another

Use case: An end-user wishes to relate a CHO to another as they believe these two CHOs are somehow related. In addition the user may wish to express that:

- **Unqualified link (3.2.1)**: the type of the relationship is unspecified (most likely to be unknown).
- **Qualified link (3.2.2)**: the type of the relationship is known.

3.2.1. Link a CHO to another using an unqualified, non-directed link

Use Case: An end-user wishes to relate a CHO to another without specifying the nature of the relation nor privileging a direction for the relationship[4].

The following modelling guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `oa:linking`.
- MUST NOT have a body;
- MUST have at least two `oa:target` properties referring to the ProvidedCHOs being linked together.

Example 6: An annotation expressing a non-directed link between two CHOs.

[4] This allows for example one annotation to be pulled (e.g., for display purposes) from either resource involved, without requiring an additional annotation that expresses the link in the reverse direction.

```
{
  "motivation": "linking",
  "target": [
    "http://data.europeana.eu/item/09102/_UEDIN_214",
    "http://data.europeana.eu/item/09102/_RMAH_119385_NL"
  ]
}
```

3.2.2. Link a CHO to another using a qualified link

Use case: A user wishes to relate a CHO to another, explicitly stating the nature (including the direction) of the relationship between them.

The following modelling guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `oa:linking`.
- The `oa:body` property MUST refer to a resource of type `trig:Graph` (in JSON-LD, this means using the `@graph` construct) containing: the URI of the source ProvidedCHO and an RDF property (expressing the semantics of the relation) linking to the target ProvidedCHO.
- The RDF property MUST belong to the following subset of the properties defined in EDM that apply to CHOs:
  `dcterms:hasPart; dcterms:isPartOf; edm:isDerivativeOf; edm:isNextInSequence; edm:isRelatedTo; edm:isRepresentationOf; edm:isSimilarTo; edm:isSuccessorOf; owl:sameAs.`
- An `oa:target` property MUST exist and refer to the ProvidedCHO that is considered as the subject of the relation (typically the item that the user was looking at when creating the annotation). A second `oa:target` property SHOULD exist and refer to the ProvidedCHO being related to, since having both enables a search by target to answer with both inbound and outbound links for a CHO. This is particularly important for use cases where the relation can be interpreted regardless of the direction (e.g., symmetric relations such as skos:related, edm:similarTo or other relations).

Note: the presence of two targets allows to somehow handle the case of bidirectional (symmetric) relations. Nevertheless, to fit the RDF data model, the pattern chosen requires that implementers assert the relationship with a certain direction in the `@graph` part. Hence, for use cases where the relation can be interpreted regardless of the direction, one of the directions MUST be chosen.

Example 7: An annotation expressing a link between two CHOs, where one is the `edm:isNextInSequence` of the other.

```
{
  "motivation": "linking",
  "body": {
    "@graph": {
      "@context": "http://www.europeana.eu/schemas/context/edm.jsonld",
      "id": "http://data.europeana.eu/item/09102/_UEDIN_214",
```

```
      "isNextInSequence": "http://data.europeana.eu/item/09102/_RMAH_119385_NL"
    }
  },
  "target": [
    "http://data.europeana.eu/item/09102/_UEDIN_214",
    "http://data.europeana.eu/item/09102/_RMAH_119385_NL"
  ]
}
```

3.3. Annotate a Web Resource

This section expands on Section 2.4.2. for scenarios where the target of an annotation is not a CHO but a web resource, such as an image, sound or video. Besides explaining how the scenarios described in the previous sections can also be applied to a web resource (Section 3.3.1), it also introduces new scenarios.

Ultimately, all the scenarios described in the previous sections can also apply to web resources, for example:

- to tag a web resource to indicate the name of a person or object depicted in an image, or further describing it by indicating the semantic resource corresponding to such person or object. Besides simple and semantic tagging, geo-tagging may also be used to indicate the coordinates of a point, for example in a cartography map.
- to link two web resources together by indicating that a piece of sheet music is played on an audio resource.

Adapting each of these scenarios into annotations of a web resource (instead of a CHO) basically requires the target to change. Hence the modelling guidelines defined in Sections 3.1 and 3.2 apply here, with the following change:

- The `oa:target` property (for each of the web resources addressed by the scenario) MUST refer to an `oa:SpecificResource` with 1) an `oa:hasScope` indicating the CHO with which the web resource is associated and 2) an `oa:hasSource` indicating the actual web resource URL and; 3) MAY have an `rdf:type` indicating that the target is an `oa:SpecificResource`.

Example 8: An annotation tagging the web resource associated with a CHO instead of a CHO in general.

```
{
  "motivation": "tagging",
  "bodyValue": "Animals",
  "target": {
    "type": "SpecificResource",
    "scope": "http://data.europeana.eu/item/5510/_MVoNr_5_987",
    "source":
"https://www.volkskundemuseum.at/jart/prj3/volkskundemuseum/data/collection-exports/
hafnergeschirr/hafnergeschirr_0_000_000_022.jpg"
  }
```

```
}
```

3.3.1. Transcriptions

User story: A user wishes to relate an image (e.g. letter) to a transcription available at Transcribathon (like the one on this page).

In addition to the guidelines defined in Section 3.3, the following guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `edm:transcribing` (see Section 2.3).
- The `oa:hasBody` property MUST exist and use an instance of `edm:FullTextResource` (following the EDM Full-text profile), which includes the transcription as text value and MUST indicate the language of the transcription text with a `dc:language` property, and indicate the rights/licences using the `edm:rights` property. The format of the webpage MAY be indicated using the `dc:format` property.

Example 9: An annotation expressing a relation between an image and the corresponding transcription text, indicating that the transcription is written in German.

```
{
  "motivation": "transcribing",
  "body": {
    "type": "FullTextResource",
    "language": "de",
    "edmRights": "http://creativecommons.org/licenses/by-sa/1.0/",
    "value": "... complete transcribed plain text ..."
  },
  "target": {
    "scope": "http://data.europeana.eu/item/2020601/contributions_20841",
    "source":
    "http://www.europeana1914-1918.eu/attachments/2020601/20841.235882.full.jpg"
  }
}
```

3.3.2. Captions and subtitles

Use case: A user wishes to contribute a caption or subtitle for a video or audio resource.

In addition to the guidelines defined in Section 3.3.1, the following guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `edm:captioning` or `edm:subtitling` (see Section 2.3).
- The `oa:hasBody` property MUST exist and use an instance of `edm:FullTextResource` (following the EDM Full-text profile), which MUST include the content of the subtitle resource

as text value, indicate the language of the subtitle text using a `dc:language` property, indicate the media (MIME) type reflecting the encoding format of the resource using the `dc:format` property, and indicate the rights/licences using the `edm:rights` property.

Example 10: An annotation expressing the contribution of an Italian subtitle encoded in WebVTT[5] for a video resource in Europeana.

```
{
  "motivation": "subtitling",
  "body": {
    "type": "FullTextResource",
    "language": "it",
    "format": "text/vtt",
    "edmRights": "http://creativecommons.org/licenses/by-sa/1.0/",
    "value": "
WEBVTT
NOTE Paragraph

00:00:00.988 --> 00:00:03.572
Dolo le ultime novità
della moda per signora

...

00:00:30.359 --> 00:00:33.608
con il grande finale:
Carnevale con il popolo eschimese.

00:00:34.199 --> 00:00:35.780
♪ (musica) ♪"
  },
  "target": {
    "scope":
"http://data.europeana.eu/item/2051933/data_euscreenXL_EUS_D61E8DF003E30114621A92ABD
E846AD7",
    "source":
    "http://www.euscreen.eu/item.html?id=EUS_D61E8DF003E30114621A92ABDE846AD7"
  }
}
```

3.3.3. Link a Web Resource to an external transcription-enabling resource

Use case: A transcription platform, such as Transcribathon,[6] notifies Europeana when an item is ready to be transcribed, and provides the direct link to the transcription application.

This use case is realised with an annotation having the motivation `edm:linkForContributing` that links to an external resource. The client application (in this case Transcribathon) sends an annotation to Europeana's Annotation API when the item becomes available for transcription. Once

[5] The corresponding media type is defined at https://w3c.github.io/webvtt/#iana-text-vtt.
[6] https://europeana.transcribathon.eu/

the transcription of the item is concluded, the client application will send to the API a `DELETE` request for the annotation.

The following modelling guidelines apply to annotations addressing this use case:

- The `oa:motivation` property MUST exist and have the value `edm:linkForContributing`.
- The `oa:body` property MUST exist and refer to the URL of the external resource.
- The `oa:target` property MUST refer to an `oa:SpecificResource` with 1) an `oa:hasScope` indicating the CHO to which the web resource is associated and 2) an `oa:hasSource` indicating the actual web resource URL as mandatory properties and; 3) MAY have an `rdf:type` indicating that the target is an `oa:SpecificResource`.

***Example 11**:* An annotation linking a Web Resource of a CHO to an external resource.

```
{
  "motivation": "edm:linkForContributing",
  "body": {
    "id": "External_Resource_URL"
  },
  "target": {
    "scope":
"https://www.europeana.eu/pt/item/2020601/https___1914_1918_europeana_eu_contributio
ns_20841",
    "source":
    "http://www.europeana1914-1918.eu/attachments/2020601/20841.235882.full.jpg"
  }
}
```

Appendix A. Possible extensions to existing application scenarios

See Appendix A. of part III.

Appendix B. Additional application scenarios under discussion

See Appendix B. of part III.

Appendix C. Deprecated use cases and application scenarios

See Appendix C. of part III.