



Guidelines for submitting IIIF resources for objects in EDM

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Editors

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The International Image Interoperability Framework (IIIF)¹ enables institutions in the cultural heritage sector to share better quality digital content. Discussions with partners in the IIIF community² have led us to identify a pattern that Europeana providers can use to submit IIIF resources from their own services in a simple way, using a small extension to the WebResource element from the Europeana Data Model.

In EDM, IIIF resources representing a cultural object are represented as instances of the class **edm:WebResource**. This guide explains how providers can include suitable descriptions for these IIIF WebResources in the EDM metadata they send to Europeana. We include a formal definition of the new EDM elements used to submit IIIF resources according to the pattern explained here.

1. The pattern

The definitions of the terms MUST, MUST NOT, SHOULD, etc. used in this document can be found at <https://www.ietf.org/rfc/rfc2119.txt>

1. Providers MUST identify the type of link between the IIIF resource for the object and the object.

EDM uses the general property *edm:hasView* to link an **ore:Aggregation** about a provided cultural object to the "views" of this object on the web. In the case of IIIF resources, the

¹ IIIF is a standard for serving and consuming high quality images online, with the ability to instruct a server about the desired resolution, or image manipulations such as rotation and zooming.

² The discussions took place in Github: <https://github.com/IIIF/iiif.io/issues/558> and the first draft recommendations published as part of the [Europeana Cloud project deliverable](#).



suitable property SHOULD be *edm:isShownBy*, *edm:object* or *edm:hasView* (if there is already an *edm:isShownBy* present). See the EDM Definitions and EDM Mapping Guidelines³ for more information on the semantics of these properties.

2. Providers SHOULD supply an identifier for the WebResource referenced as a 'view' of the object.

EDM doesn't strictly require that the WebResource for a IIIF 'view' have a specific identifier. In a pure RDF context it could in fact be left without any identifier. A IIIF viewer can generate views from the information supplied in the following steps. However, a non-IIIF viewer will not be able to do this.

For wider consumption of IIIF resources by Europeana data re-users, we recommend that providers SHOULD supply URIs for the IIIF 'view', that can be consumed by any traditional web client. The most natural way to do this is to use URLs that employ appropriate IIIF parameters on the base IIIF service so that clients obtain a good image, as in

<http://dams.llgc.org.uk/iiif/image/2.0/1294670/full/512,/0/default.jpg>⁴

Note that Europeana encourages data providers to link to an image of the highest resolution as possible. It will allow Europeana to better serve its users by enabling the download of the images and browsing by technical features⁵ (e.g. pixel dimensions, MIME-type, colour palette).

The URI for the WebResource MUST NOT be the one of a IIIF manifest⁶ as manifests are metadata files and not (media) views for a cultural object.

```
<ore:Aggregation rdf:about="[...]">
  [...]
  <edm:isShownBy
rdf:resource="http://dams.llgc.org.uk/iiif/image/2.0/1294670/full/512,/0/default.
jpg">
  [...]
</ore:Aggregation>
<edm:WebResource
rdf:about="http://dams.llgc.org.uk/iiif/image/2.0/1294670/full/512,/0/default.jpg
"/>
```

³ <http://pro.europeana.eu/edm-documentation>

⁴ Note that in the coming version 2.1 of the IIIF image API (<http://iiif.io/api/image/2.1/>), the parameter "max": will replace the "full" parameter to request the biggest allowable image as opposed to biggest image available.

⁵ More details on the technical metadata extracted by Europeana from images are available in the EDM profile for technical metadata at <http://pro.europeana.eu/share-your-data/data-guidelines/edm-profiles>

⁶ The manifest resource represents a single object and any intellectual work or works embodied within that object <http://iiif.io/api/presentation/2.0/#manifest>



Sample of an EDM record implementing steps 1 and 2 of the pattern

3. Providers **MUST** flag the WebResource as a IIIF-compliant resource by:

- connecting the WebResource to a resource of type **svcs:Service** using *svcs:has_service*
- indicating that the WebService conforms to (*dcterms:conformsTo*⁷) the IIIF profile. The value of *dcterms:conformsTo* **MUST** be the URI <http://iiif.io/api/image>

4. The identifier of the Service **MUST** be the 'base URI' of the IIIF resource. See the IIIF specifications for the definition of the base URI: <http://iiif.io/api/image/2.0/#uri-syntax>

```
<edm:WebResource
rdf:about="http://dams.llgc.org.uk/iiif/image/2.0/1294670/full/512,/0/default.jpg"
">
  <svcs:has_service
rdf:resource="http://dams.llgc.org.uk/iiif/image/2.0/1294670"/>
</edm:WebResource>

<svcs:Service rdf:about="http://dams.llgc.org.uk/iiif/image/2.0/1294670"8>
  <dcterms:conformsTo rdf:resource="http://iiif.io/api/image"/>
</svcs:Service>
```

Sample of an EDM record implementing steps 3 and 4 of the pattern

5. A provider **MAY** provide access to a IIIF Manifest

A IIIF Manifest allow a IIIF viewer to render the image in a relevant setting. The 'base' WebResource from steps 1 and 2 can be connected to a manifest URI using the property *dcterms:isReferencedBy*.

```
<edm:WebResource
rdf:about="http://dams.llgc.org.uk/iiif/image/2.0/1294670/full/512,/0/default.jpg"
">
  <svcs:has_service
rdf:resource="http://dams.llgc.org.uk/iiif/image/2.0/1294670"/>
  <dcterms:isReferencedBy
rdf:resource="http://dams.llgc.org.uk/iiif/2.0/1294670/manifest.json"/>
</edm:WebResource>
```

⁷ <http://iiif.io/api/image/2.0/index.html#image-information>

⁸ Specifications of the WebService URI should follow the recommendation made at <http://iiif.io/api/image/2.0/#uri-syntax> - "When the base URI is dereferenced, the interaction **SHOULD** result in the Image Information document. It is **RECOMMENDED** that the response be a 303 status redirection to the Image Information document's URI."



6. A provider *MAY* indicate a level of IIIF implementation.

The definition of a IIIF “protocol”, for example <http://iiif.io/api/image/2/level1.json>, can be added with a *doap:implements*⁹. However, Europeana itself will not exploit it now. But data re-users with specific needs might benefit from the availability of this information.

```
<svcs:Service rdf:about="http://dams.llgc.org.uk/iiif/image/2.0/1294670">
  <dcterms:conformsTo rdf:resource="http://iiif.io/api/image"/>
  <doap:implements rdf:resource="http://iiif.io/api/image/2/level1.json">
</svcs:Service>
```

2. Complete examples

Example 1: Sample of an EDM record implementing all steps of the pattern (including the optional steps)

```
<ore:Aggregation rdf:about=" [...] ">
[... ]
  <edm:isShownBy
rdf:resource="http://dams.llgc.org.uk/iiif/image/2.0/1294670/full/512,/0/default.
jpg">
[... ]
</ore:Aggregation>
<edm:WebResource
rdf:about="http://dams.llgc.org.uk/iiif/image/2.0/1294670/full/512,/0/default.jpg
">
  <svcs:has_service
rdf:resource="http://dams.llgc.org.uk/iiif/image/2.0/1294670"/>
  <dcterms:isReferencedBy
rdf:resource="http://dams.llgc.org.uk/iiif/2.0/1294670/manifest.json"/>
</edm:WebResource>
<svcs:Service rdf:about="http://dams.llgc.org.uk/iiif/image/2.0/1294670">
  <dcterms:conformsTo rdf:resource="http://iiif.io/api/image"/>
  <doap:implements rdf:resource="http://iiif.io/api/image/2/level1.json">
</svcs:Service>
```

Example 2: Sample of EDM record implementing all steps but the definition of the IIIF manifest (for IIIF service supporting only image request calls)

```
<ore:Aggregation rdf:about=" [...] ">
[... ]
  <edm:isShownBy
rdf:resource="http://iiif.europeana.eu/AZ_1927_01_04_0001/full/full/0/default.jpg
10">
```

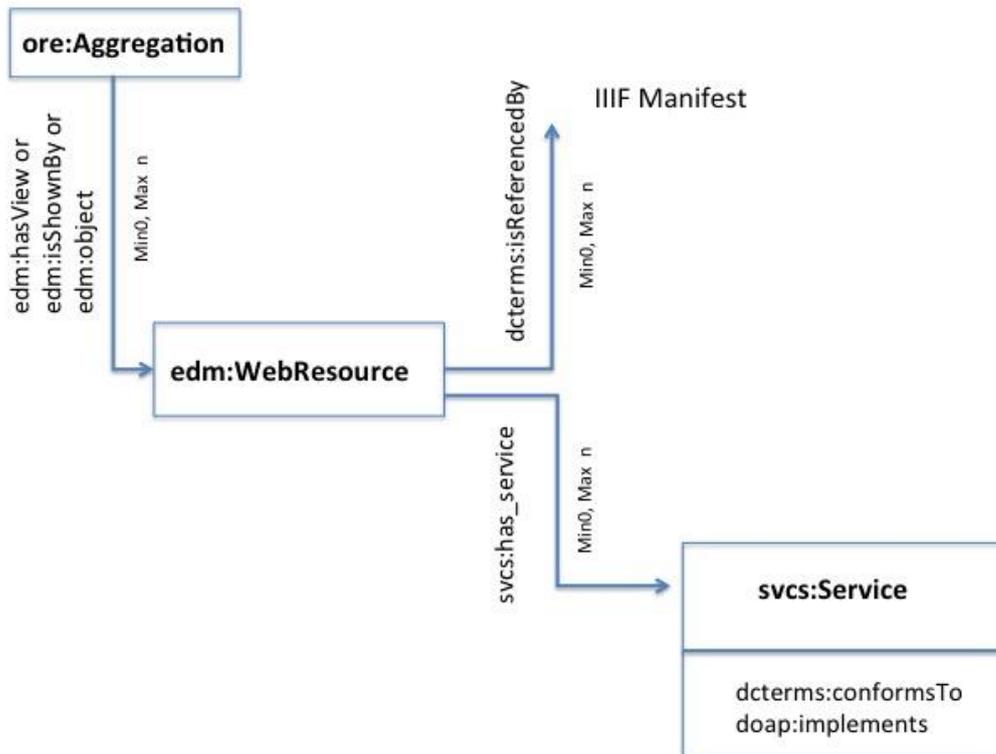
⁹ This property corresponds to the “protocol” element in the IIIF JSON context

¹⁰ Note that the set of parameters available as part of the URI will vary depending on the image the data provider wants to make available.



```
[...]
</ore:Aggregation>
<edm:WebResource
  rdf:about="http://iiif.europeana.eu/AZ_1927_01_04_0001/full/full/0/default.jpg">
  <svcs:has_service rdf:resource="http://iiif.europeana.eu/AZ_1927_01_04_0001"/>
</edm:WebResource>
<svcs:Service rdf:about="http://iiif.europeana.eu/AZ_1927_01_04_0001">
  <dcterms:conformsTo rdf:resource="http://iiif.io/api/image"/>
  <doap:implements rdf:resource="http://iiif.io/api/image/2/level1.json"/>
</svcs:Service>
```

3. Definition of classes and properties used in the pattern



Overview of classes and properties for the IIIF to EDM mapping



3.1. Classes

Class name: svcs:Service	
URI	http://rdfs.org/sioc/services#Service
Label	Service
Definition	A Service is web service associated with a Site or part of it. The Service class is used to flag a service requiring a specific protocol and profile to be consumed.
Obligation & Occurrence	Optional (Minimum: 0, Maximum: 0)
Example	<svcs:Service rdf:about="http://dams.llgc.org.uk/iiif/image/2.0/1294670">

3.2. Properties

Property name: dcterms:conformsTo	
URI	http://purl.org/dc/terms/conformsTo
Label	Conforms To
Definition	An established standard to which the web resource or service conforms. W3C WCAG 2.0 (web content accessibility guidelines). If the Service describes a IIIF resource, dcterms:conformsTo must be used to describe the IIIF protocol the resource is conforming to.
Subproperty of	dc:relation
Obligation & Occurrence	Optional (Minimum: 1, Maximum: unbounded)
Example	<dcterms:conformsTo rdf:resource="http://iiif.io/api/image"/>

Property name: doap:implements	
URI	http://usefulinc.com/ns/doap#implements
Label	Implements
Definition	A specification that a project implements. Could be a standard, API or legally defined level of conformance. In IIIF doap:implements refers to the the protocol implemented in IIIF.
Obligation & Occurrence	Optional (Minimum: 0, Maximum: 1)
Example	<doap:implements



<pre> rdf:resource="http://iiif.io/api/image/2/level1.json"/> </pre>

Property name: svcs:has_service	
URI	http://rdfs.org/sioc/services#has_service
Label	has service
Definition	The identifier of the Service require to consume the WebResource.
Obligation & Occurrence	Optional (Minimum: 0, Maximum: unbounded)
Example	<svcs:has_service rdf:resource="http://www.example.org/Service/IIIF">

Property name: dcterms:isReferencedBy	
URI	http://purl.org/dc/terms/isReferencedBy
Label	Is Referenced By
Definition	A related resource that references, cites, or otherwise points to the described resource. In IIIF, dcterms:isReferencedBy can be used to connect an edm:WebResource to a IIIF manifest URI.
Subproperty of	dc:relation
Obligation & Occurrence	Optional (Minimum: 0, Maximum: unbounded)
Example	<dcterms:isReferencedBy rdf:resource="http://dams.llgc.org.uk/iiif/2.0/1294670/manifest.json"/>

Document History

Version	Editor	Date	Comments
v0.1	Valentine Charles, Europeana Foundation (EF)	01/03/2016	First draft version based on the EuropeanaCloud project deliverable
V0.2	Antoine Isaac, EF	21/03/2016	New version of the document after the comments from David Haskiya and Glen Robson, and the input from Mark Matienzo, Karen Estlund and Rob Sanderson during the LDCX conference .
V1.0	Valentine Charles, EF	25/04/2016	Final version