

# From Open Annotations to W3C Web Annotations (and the impact on IIIF Presentation API 3.0)

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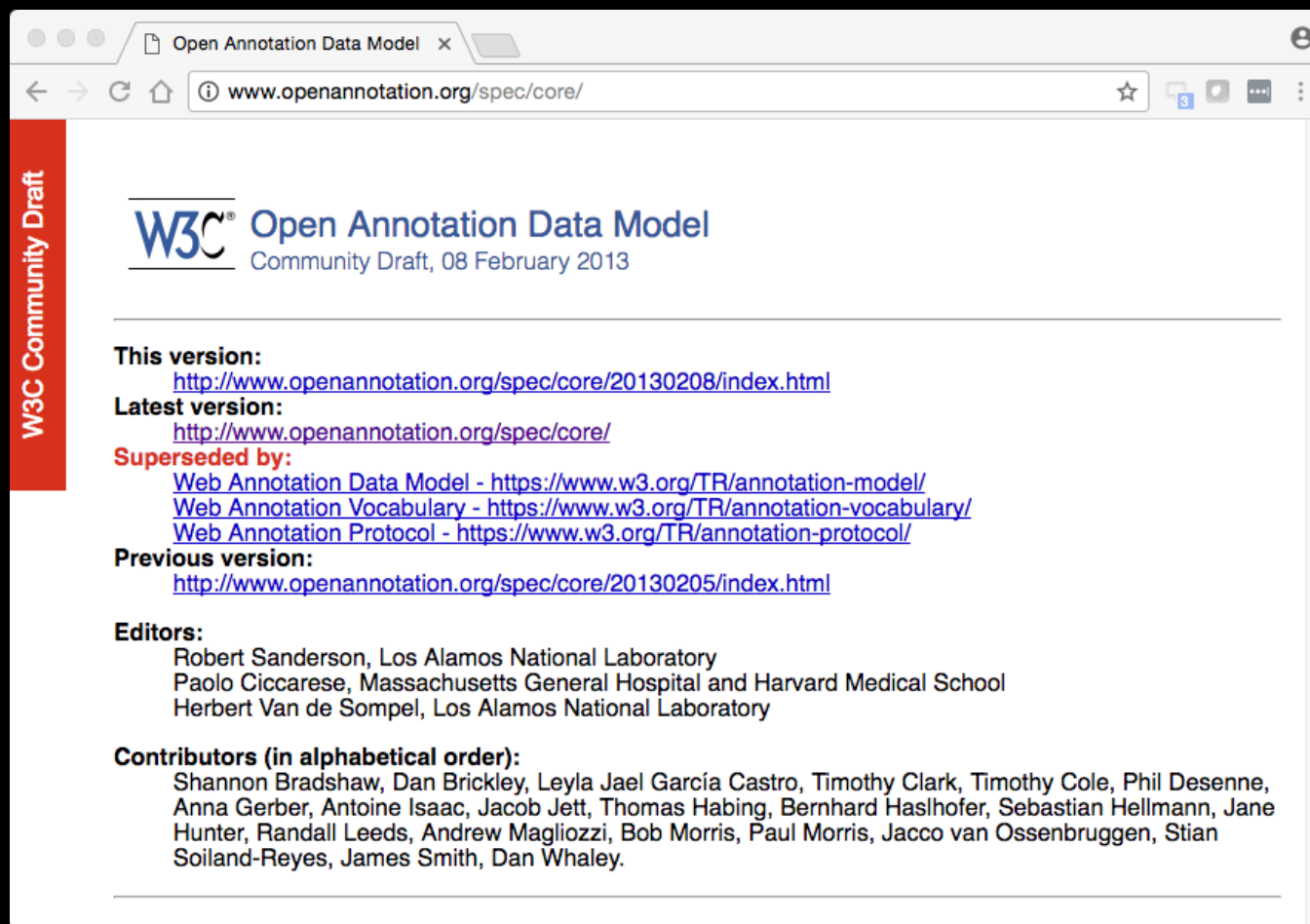
much input from Rob Sanderson (J. Paul Getty Trust)

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(errors belong to Simeon though)

# Open Annotation

- W3C “Community Draft” 2013
- Basis for annotations in IIF Presentation API v2.1 (and prior versions)



The image shows a browser window displaying the W3C Open Annotation Data Model Community Draft page. The browser's address bar shows the URL [www.openannotation.org/spec/core/](http://www.openannotation.org/spec/core/). A red vertical banner on the left side of the page reads "W3C Community Draft". The main content of the page includes the W3C logo and the title "Open Annotation Data Model" with the subtitle "Community Draft, 08 February 2013". Below this, there are sections for "This version:", "Latest version:", "Superseded by:", and "Previous version:", each with a corresponding URL. The "Superseded by:" section lists three related W3C documents: "Web Annotation Data Model", "Web Annotation Vocabulary", and "Web Annotation Protocol". The "Editors:" section lists Robert Sanderson, Paolo Ciccarese, and Herbert Van de Sompel. The "Contributors (in alphabetical order):" section lists Shannon Bradshaw, Dan Brickley, Leyla Jael García Castro, Timothy Clark, Timothy Cole, Phil Desenne, Anna Gerber, Antoine Isaac, Jacob Jett, Thomas Habing, Bernhard Haslhofer, Sebastian Hellmann, Jane Hunter, Randall Leeds, Andrew Magliozzi, Bob Morris, Paul Morris, Jacco van Ossenbruggen, Stian Soiland-Reyes, James Smith, and Dan Whaley. At the bottom right, there is a Creative Commons Attribution (CC BY) license logo.

W3C Community Draft

**W3C** Open Annotation Data Model  
Community Draft, 08 February 2013

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**This version:**  
<http://www.openannotation.org/spec/core/20130208/index.html>

**Latest version:**  
<http://www.openannotation.org/spec/core/>

**Superseded by:**  
[Web Annotation Data Model - https://www.w3.org/TR/annotation-model/](https://www.w3.org/TR/annotation-model/)  
[Web Annotation Vocabulary - https://www.w3.org/TR/annotation-vocabulary/](https://www.w3.org/TR/annotation-vocabulary/)  
[Web Annotation Protocol - https://www.w3.org/TR/annotation-protocol/](https://www.w3.org/TR/annotation-protocol/)

**Previous version:**  
<http://www.openannotation.org/spec/core/20130205/index.html>

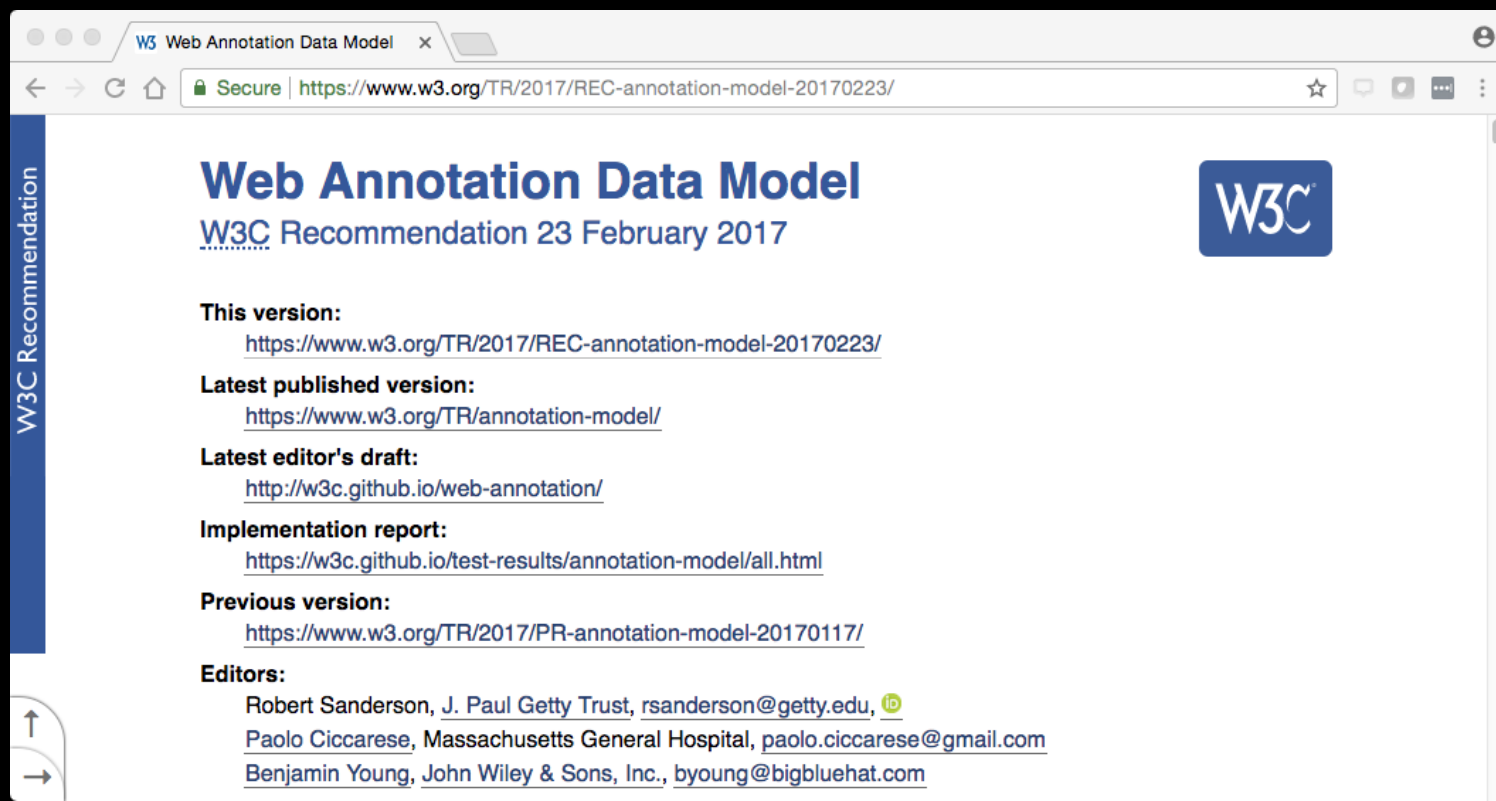
**Editors:**  
Robert Sanderson, Los Alamos National Laboratory  
Paolo Ciccarese, Massachusetts General Hospital and Harvard Medical School  
Herbert Van de Sompel, Los Alamos National Laboratory

**Contributors (in alphabetical order):**  
Shannon Bradshaw, Dan Brickley, Leyla Jael García Castro, Timothy Clark, Timothy Cole, Phil Desenne, Anna Gerber, Antoine Isaac, Jacob Jett, Thomas Habing, Bernhard Haslhofer, Sebastian Hellmann, Jane Hunter, Randall Leeds, Andrew Magliozzi, Bob Morris, Paul Morris, Jacco van Ossenbruggen, Stian Soiland-Reyes, James Smith, Dan Whaley.


CC BY

# W3C Web Annotation

- Cluster of W3C Recommendations – real standards – released 2017-02



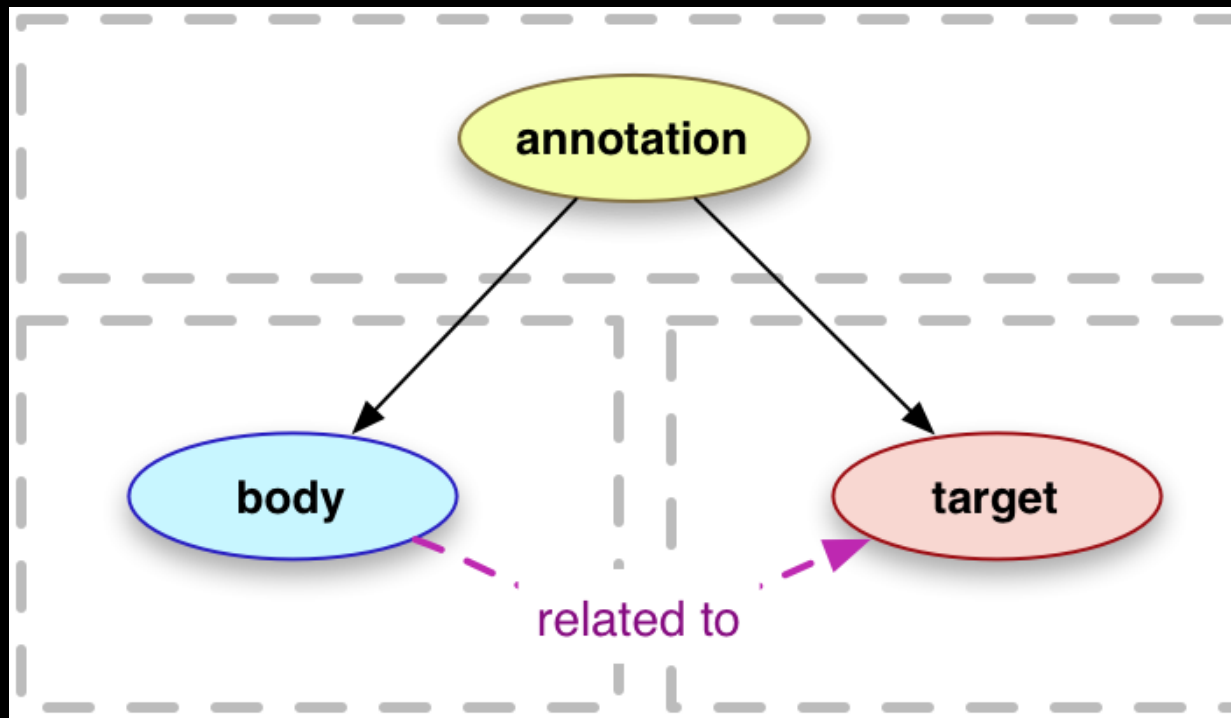
The screenshot shows a web browser window with the following content:

- Page Title:** Web Annotation Data Model
- URL:** <https://www.w3.org/TR/2017/REC-annotation-model-20170223/>
- W3C Recommendation 23 February 2017**
- W3C Logo**
- This version:** <https://www.w3.org/TR/2017/REC-annotation-model-20170223/>
- Latest published version:** <https://www.w3.org/TR/annotation-model/>
- Latest editor's draft:** <http://w3c.github.io/web-annotation/>
- Implementation report:** <https://w3c.github.io/test-results/annotation-model/all.html>
- Previous version:** <https://www.w3.org/TR/2017/PR-annotation-model-20170117/>
- Editors:**
  - Robert Sanderson, J. Paul Getty Trust, [rsanderson@getty.edu](mailto:rsanderson@getty.edu), 
  - Paolo Ciccarese, Massachusetts General Hospital, [paolo.ciccarese@gmail.com](mailto:paolo.ciccarese@gmail.com)
  - Benjamin Young, John Wiley & Sons, Inc., [byoung@bigbluehat.com](mailto:byoung@bigbluehat.com)

Additional elements in the screenshot include a vertical sidebar on the left labeled "W3C Recommendation", a browser address bar with navigation icons, and a Creative Commons Attribution (CC BY) license logo in the bottom right corner.

# Basic model - no change

- Identical *picture* used in Open Annotation and Web Annotation
- An annotation (resource) has:
  - zero or more bodies (e.g. highlight may have zero)
  - one or more targets
- Same namespace <http://www.w3.org/ns/oa#> and same suggested oa : prefix (in serializations other than JSON-LD)



# Cleaner JSON – mirrored in Presentation 3

- Focus on developer/user friendliness: better documentation, use cases for each feature, and...
- No prefixes, better terms, fewer @ signs
- Stricter definition of values and cardinality
- Downside of improvements... numerous changes in the JSON-LD

```
{
  "@context": ".../presentation/2/context.json",

  "@id": "http://ex.org/.../p1-image",
  "@type": "oa:Annotation",
  "motivation": "sc:painting",
  "resource": {
    "@id": "http://ex.org/.../p1.jpg",
    "@type": "dctypes:Image",
    "format": "image/jpeg",
    "service": {
      "@context": ".../image/2/context.json",
      "@id": "http://ex.org/.../p1",
      "profile": ".../image/2/level2.json"
    },
    "height": 2000,
    "width": 1500
  },
  "on": "http://ex.org/.../p1"
}
```

[v2 example 5.4](#)

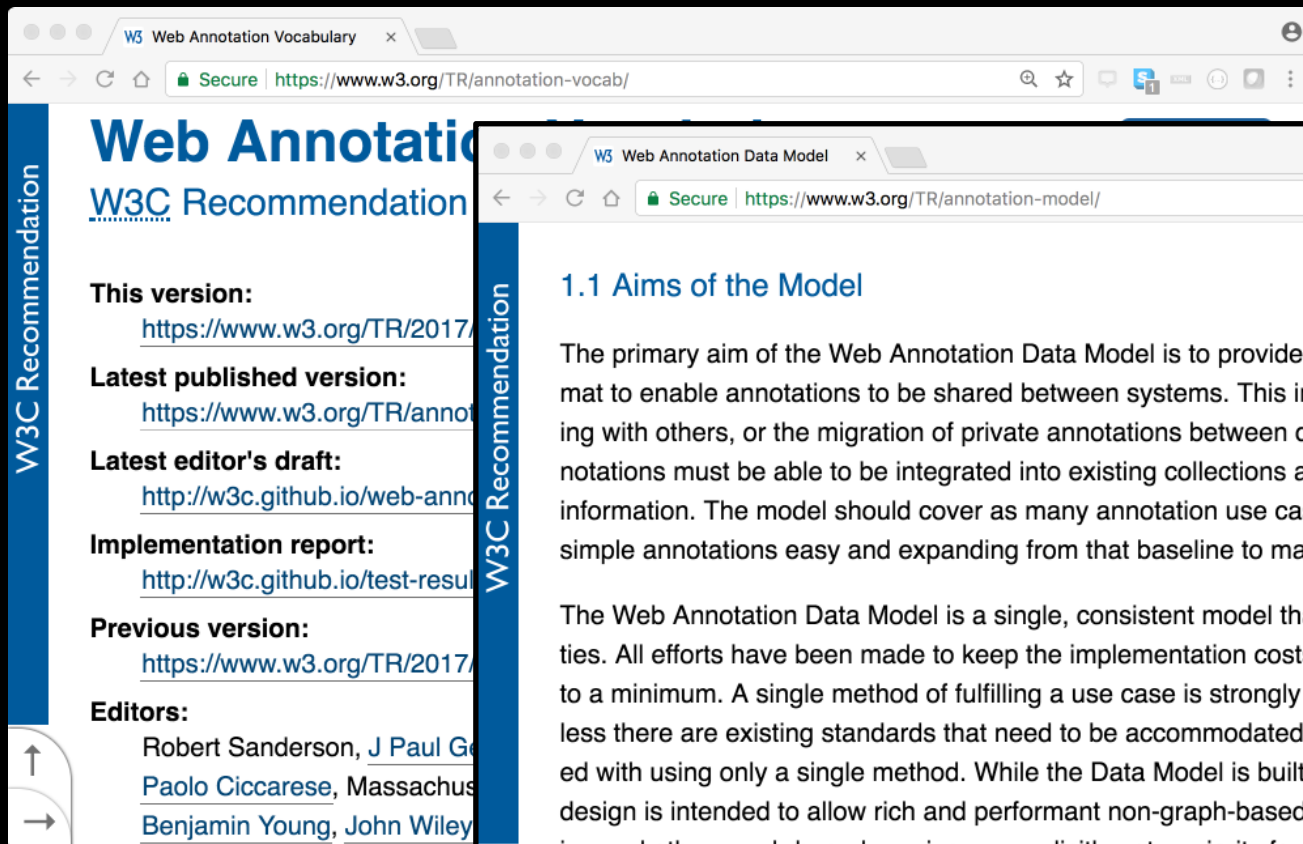
```
{
  "@context": [
    "http://www.w3.org/ns/anno.jsonld",
    ".../presentation/3/context.json"
  ],
  "id": "http://ex.org/.../p1-image",
  "type": "Annotation",
  "motivation": "painting",
  "body": {
    "id": "http://ex.org/.../p1.jpg",
    "type": "Image",
    "format": "image/jpeg",
    "service": {
      "id": "http://ex.org/.../p1",
      "type": "ImageService3",
      "profile": "level2"
    },
    "height": 2000,
    "width": 1500
  },
  "target": "http://ex.org/.../p1"
}
```

[v3 example 5.5](#)



# Web Annotation splits Model and Vocabulary

- Combined in Open Annotation specification
- No direct impact on IIF but cleaner (model examples all JSON-LD whereas the vocabulary uses Turtle)



The screenshot shows the W3C Web Annotation Vocabulary page. The browser address bar displays the URL <https://www.w3.org/TR/annotation-vocab/>. The page title is "Web Annotation Vocabulary" and it is a W3C Recommendation. The page content includes a sidebar with navigation links and a main section titled "1.1 Aims of the Model".

**Web Annotation Vocabulary**  
W3C Recommendation

**This version:**  
<https://www.w3.org/TR/2017/>

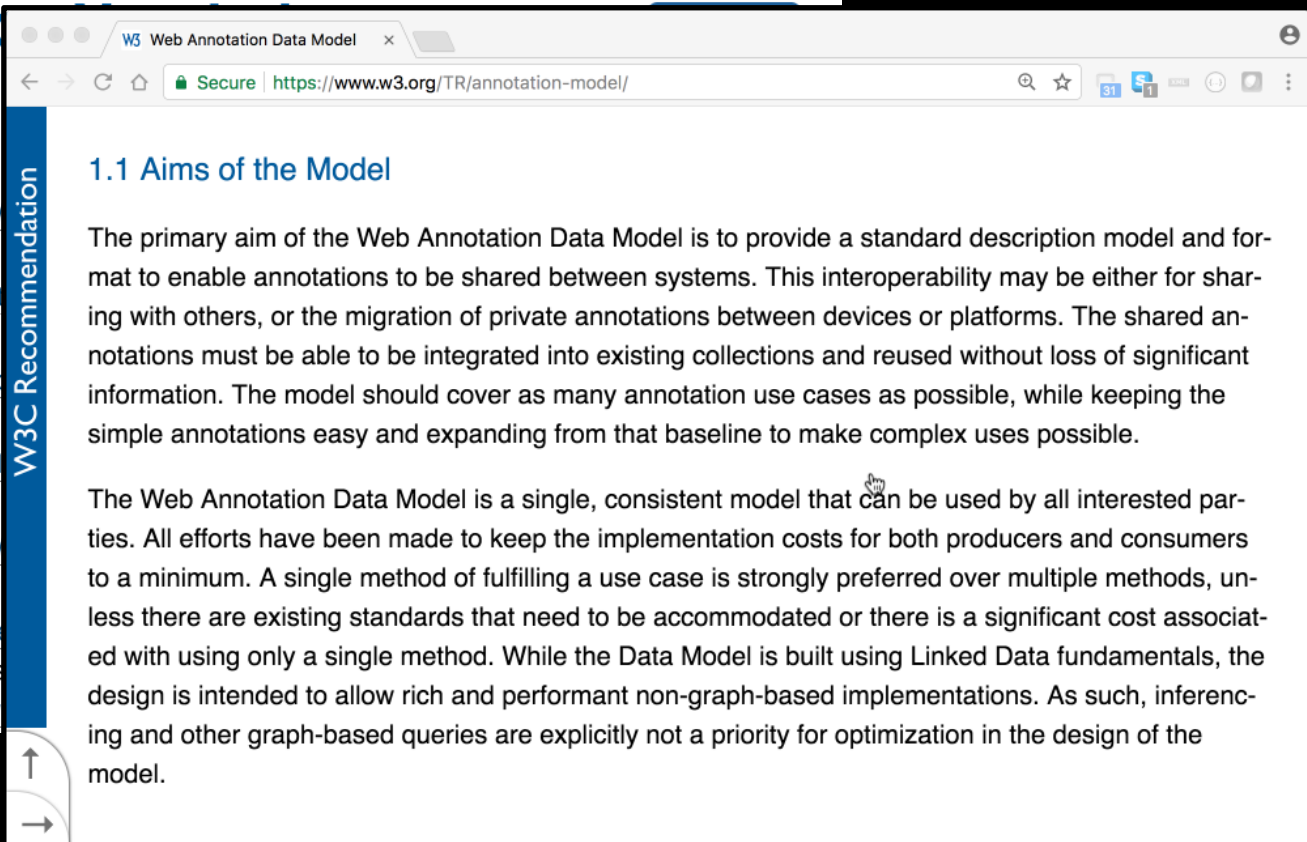
**Latest published version:**  
<https://www.w3.org/TR/annotation-vocab/>

**Latest editor's draft:**  
<http://w3c.github.io/web-annotation/>

**Implementation report:**  
<http://w3c.github.io/test-results/>

**Previous version:**  
<https://www.w3.org/TR/2017/>

**Editors:**  
Robert Sanderson, J Paul George, Paolo Ciccicarese, Massachusetts Institute of Technology, Benjamin Young, John Wiley & Sons



The screenshot shows the W3C Web Annotation Data Model page. The browser address bar displays the URL <https://www.w3.org/TR/annotation-model/>. The page title is "Web Annotation Data Model" and it is a W3C Recommendation. The page content includes a sidebar with navigation links and a main section titled "1.1 Aims of the Model".

**Web Annotation Data Model**  
W3C Recommendation

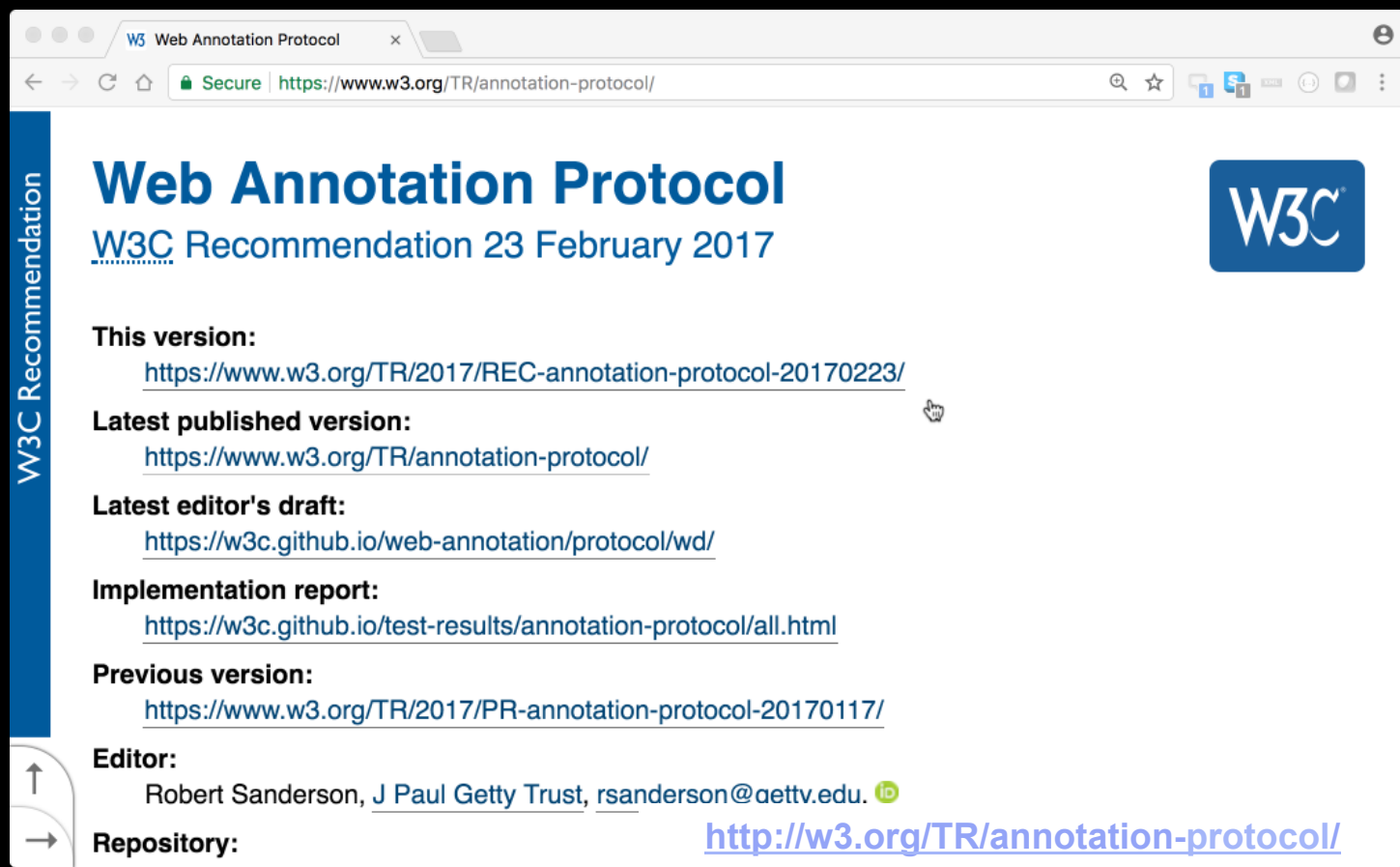
## 1.1 Aims of the Model

The primary aim of the Web Annotation Data Model is to provide a standard description model and format to enable annotations to be shared between systems. This interoperability may be either for sharing with others, or the migration of private annotations between devices or platforms. The shared annotations must be able to be integrated into existing collections and reused without loss of significant information. The model should cover as many annotation use cases as possible, while keeping the simple annotations easy and expanding from that baseline to make complex uses possible.


The Web Annotation Data Model is a single, consistent model that can be used by all interested parties. All efforts have been made to keep the implementation costs for both producers and consumers to a minimum. A single method of fulfilling a use case is strongly preferred over multiple methods, unless there are existing standards that need to be accommodated or there is a significant cost associated with using only a single method. While the Data Model is built using Linked Data fundamentals, the design is intended to allow rich and performant non-graph-based implementations. As such, inferencing and other graph-based queries are explicitly not a priority for optimization in the design of the model.

# Adds Protocol for Annotations

- Separate “Web Annotation Protocol” specification
- Not included in the Open Annotation specifications
- Describes the rest of REST: create, update and delete

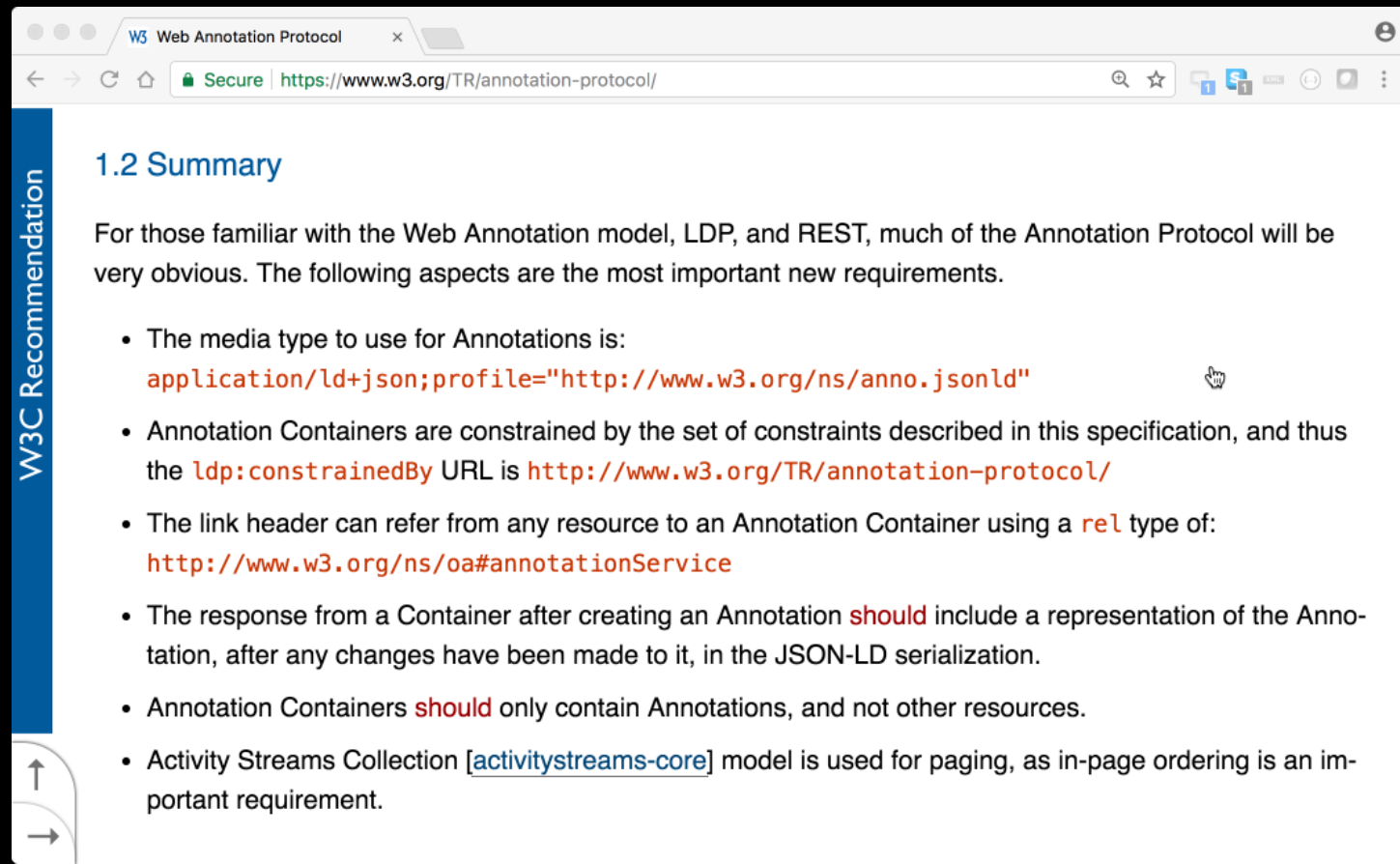


The image shows a browser window displaying the W3C Web Annotation Protocol page. The browser's address bar shows the URL <https://www.w3.org/TR/annotation-protocol/>. The page title is "Web Annotation Protocol" and it is identified as a "W3C Recommendation 23 February 2017". The W3C logo is visible in the top right corner. A vertical blue bar on the left side of the page contains the text "W3C Recommendation". The main content area lists several key links:

- This version:** <https://www.w3.org/TR/2017/REC-annotation-protocol-20170223/>
- Latest published version:** <https://www.w3.org/TR/annotation-protocol/>
- Latest editor's draft:** <https://w3c.github.io/web-annotation/protocol/wd/>
- Implementation report:** <https://w3c.github.io/test-results/annotation-protocol/all.html>
- Previous version:** <https://www.w3.org/TR/2017/PR-annotation-protocol-20170117/>
- Editor:** Robert Sanderson, J Paul Getty Trust, [rsanderson@aettv.edu](mailto:rsanderson@aettv.edu) 
- Repository:** <http://w3.org/TR/annotation-protocol/>

# Protocol use in IIF Presentation 3

5.5 Annotations ... “Annotations **MUST** have their own `http(s)` URIs, conveyed in the `id` property. The JSON-LD description of the Annotation **SHOULD** be returned if the URI is dereferenced, according to the Web Annotation Protocol.”



The image shows a screenshot of a web browser displaying the 'Web Annotation Protocol' page. The browser's address bar shows the URL 'https://www.w3.org/TR/annotation-protocol/'. The page content includes a section titled '1.2 Summary' and a list of requirements for annotations. A vertical blue bar on the left side of the page contains the text 'W3C Recommendation'. The browser's interface includes standard navigation buttons (back, forward, refresh, home) and a search bar.

W3C Recommendation

## 1.2 Summary

For those familiar with the Web Annotation model, LDP, and REST, much of the Annotation Protocol will be very obvious. The following aspects are the most important new requirements.

- The media type to use for Annotations is:  
`application/ld+json;profile="http://www.w3.org/ns/anno.jsonld"`
- Annotation Containers are constrained by the set of constraints described in this specification, and thus the `ldp:constrainedBy` URL is `http://www.w3.org/TR/annotation-protocol/`
- The link header can refer from any resource to an Annotation Container using a `rel` type of:  
`http://www.w3.org/ns/oa#annotationService`
- The response from a Container after creating an Annotation **should** include a representation of the Annotation, after any changes have been made to it, in the JSON-LD serialization.
- Annotation Containers **should** only contain Annotations, and not other resources.
- Activity Streams Collection [[activitystreams-core](#)] model is used for paging, as in-page ordering is an important requirement.



# Replaced "Content in RDF" with TextualBody

Web Annotation removed defunct "Content in RDF" specification

- Working Draft from [2011](#) never progressed to a specification. A new Working Group Note was published in [2017](#) with essentially the same content (better formatting) but is not on a standardization path.
- ContentAsBase64 and ContentAsXML (along with DoctypeDecl) are pretty ugly too ;-)

Instead use TextualBody which mirrors referenced content:

```
{
  "@context": "http://www.w3.org/ns/anno.jsonld",
  "id": "http://example.org/anno5",
  "type": "Annotation",
  "body": {
    "type": "TextualBody",
    "value": "<p>j'adore !</p>",
    "format": "text/html",
    "language": "fr"
  },
  "target": "http://example.org/photo1"
}
```

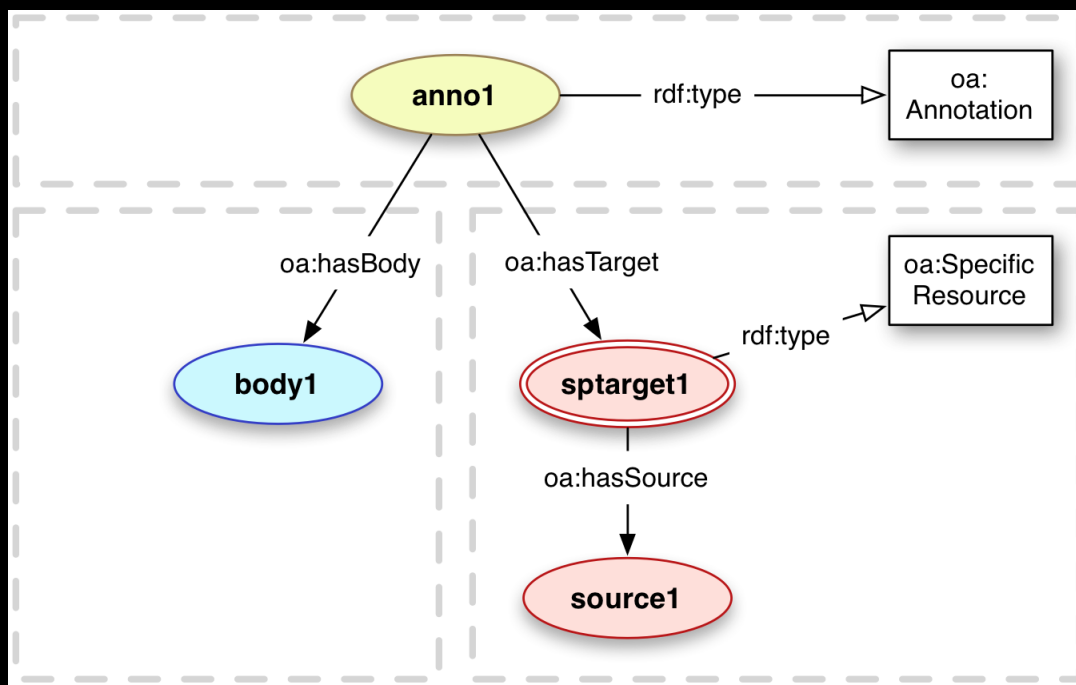
# Adds bodyValue shortcut (hack)

The bodyValue shortcut provides a very compact syntax for the simplest case of a single string body, but it is explicitly **NOT RECOMMENDED** for use

- and hence... not used in IIF!
- goes against evolving principle of regularity – feedback from client developers is that we should have regularly formatted JSON-LD, avoiding multiple forms

# Specific Resources

- Model largely the same – provides the ability to contextualize, or select part of, the body or target resource in the annotation
  - Now recommended pattern for [fragments](#), instead of direct #xywh= URIs
  - Added purpose as way of associating a Motivation with a Specific Resource
  - More selectors and selector refinement by [chaining](#)



# Selectors rather than direct fragments?

It is **RECOMMENDED** to use `FragmentSelector` as a consistent method compatible with other means of describing `SpecificResources`, rather than using the IRI with a fragment directly. Consuming applications **SHOULD** be aware of both. [[Web Annotation, Fragment Selector](#)]

```
{
  "@context": ".../presentation/2/context.json",

  "@id": "http://ex.org/anno1",
  "@type": "oa:Annotation",
  "motivation": "sc:painting",
  "resource": {
    "@id": "http://ex.org/image.jpg",
    ...
  },
  "on": "http://ex.org/canvas/p1#xywh=0,0,600,900"
}
```

[shortened example from v2 segments](#)



```
{
  "@context": [
    "http://www.w3.org/ns/anno.jsonld",
    ".../presentation/3/context.json"
  ],
  "@id": "http://ex.org/anno1",
  "@type": "Annotation",
  "motivation": "painting",
  "body": {
    "@id": "http://ex.org/image.jpg",
    ...
  },
  "target": {
    "source": "http://ex.org/canvas/p1",
    "selector": {
      "type": "FragmentSelector",
      "conformsTo": "...w3.org/TR/media-frags/",
      "value": "xywh=0,0,600,900"
    }
  }
}
```

**Not yet decided:**  
<https://github.com/IIIF/api/issues/1338>

# Annotation Pages and Collections

Web Annotation specification introduces the [Annotation Page](#) as part of an Annotation Collection

- Class from Activity Streams (as:OrderedCollectionPage)
- Annotation Lists (a [Shared Canvas construct](#)) are replaced with [Annotation Pages](#)
- In IIIF JSON-LD the type changes from sc:AnnotationList to AnnotationPage

also introduces the [Annotation Collection](#)

- Class from Activity Streams (as:OrderedCollection) which has Annotation Pages as parts
- Layers (a [Shared Canvas construct](#)) are replaced with [Annotation Collections](#)
- In IIIF JSON-LD the type changes from sc:Layer to AnnotationCollection

# Changes without direct impact on IIF

- Replaced [prov-o ontology features](#) with simpler [notions from dcterms](#)
- Selection of bodies: [List](#) and [Composite](#) were removed as the use cases were deemed too esoteric with no implementations; [Choice](#) remains, but is now ordered list (sub-class of `as:OrderedCollection`) rather than a default plus unordered options
- Added additional properties for [bodies and targets](#):
  - `processingLanguage` and `textDirection` for Internationalization
  - `accessibility`, using schema.org description of the `accessibilityFeature` property.
- Additional properties for the annotation:
  - `audience`, based schema.org's Audience class