

IIIF & ResourceSync: *Supporting discovery*



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International Image Interoperability Framework

A community
that develops *Shared APIs*
implements them in *Software*
and exposes interoperable *Content*

<http://iiif.io/>

IIIF Community

<http://iiif.io/community>

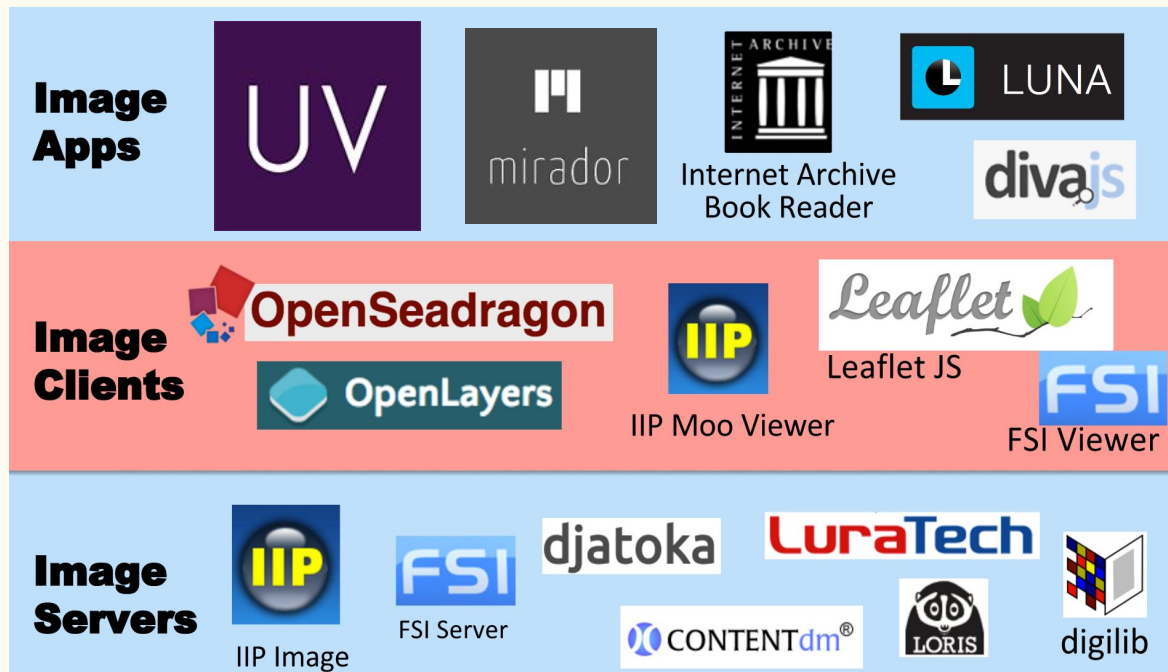
- IIIF Consortium
 - Currently 38 state/national libraries, universities, museums, tech firms
 - Provides sustainability and steering for the initiative
 - Wider community
 - 80+ CH institutions, companies, and projects using IIIF standards
 - iiif-discuss list = 670+ members
 - IIIF Slack = 300+ members
 - Community & Technical Specification Groups
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Shared APIs

<http://iiif.io/api/>

- Image API
 - Transfer image pixels, regions, etc.
 - Image manipulation
 - Presentation API
 - Presentation of an object (pixels + navigation and metadata)
 - Easily share and re-use, mix and match content
 - Annotate content
 - Search API
 - Search annotations
 - Authentication API
 - Provide interoperability for access-restricted content
-

Software Implementations

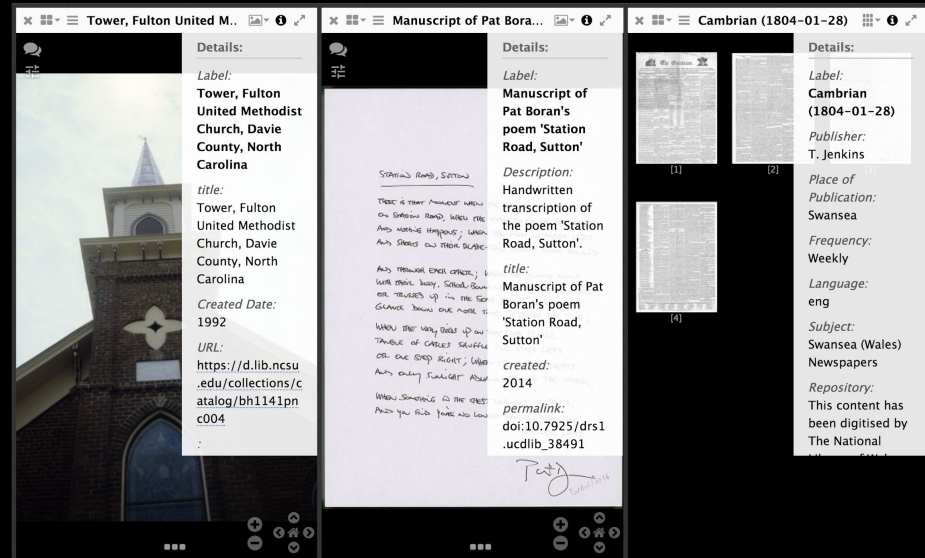


<https://github.com/IIIF/awesome-iiif>

IIIF Content

All kinds of image resources:
artworks, photographs,
manuscripts, newspapers

Investigating AV and 3D



“Discovery” in IIIF

Finding interoperable resources

Two main concerns:

- How can users *find* IIIF resources?
- How can users then *get those resources into an environment where they can use them?*



Scoping the problem

What resources
can be discovered?

Types of resources in IIIF:

- Content (Image API)
- Description (Presentation API)

The Image API **does not provide description** of image content, just technical and rights metadata.

Discovery requires **Description** resources to provide information about **Content** resources.

Presentation API

A *Manifest* provides just enough metadata (descriptive, structural, etc.) to drive a viewer.

A *Collection* groups *Manifests* or other *Collections*.

<http://iiif.io/api/presentation/2.1/>

```
// Metadata about this manifest file
"@context": "http://iiif.io/api/presentation/2/context.json",
"@id": "http://example.org/iiif/book1/manifest",
"@type": "sc:Manifest",

// Descriptive metadata about the object/work
"label": "Book 1",
"metadata": [
  {
    "label": "Author", "value": "Anne Author",
  },
  {
    "label": "Published", "value": [
      {
        "@value": "Paris, circa 1490", "@language": "en",
      },
      {
        "@value": "Paris, environ 1490", "@language": "fr"
      }
    ]
  },
  {
    "label": "Notes", "value": ["Text of note 1", "Text of note 2"],
  },
  {
    "label": "Source",
    "value": "<span>From <a href='\"http://example.org/cb/1.html\">Some Collection</a></span>!"
  }
],
"description": "A longer description of this example book. It should give some real information.",
"thumbnail": {
  "@id": "http://example.org/images/book1-page1/full/80,100/0/default.jpg",
  "service": {
    "@context": "http://iiif.io/api/image/2/context.json",
    "@id": "http://example.org/images/book1-page1",
    "profile": "http://iiif.io/api/image/2/profile1.json"
  }
},
},

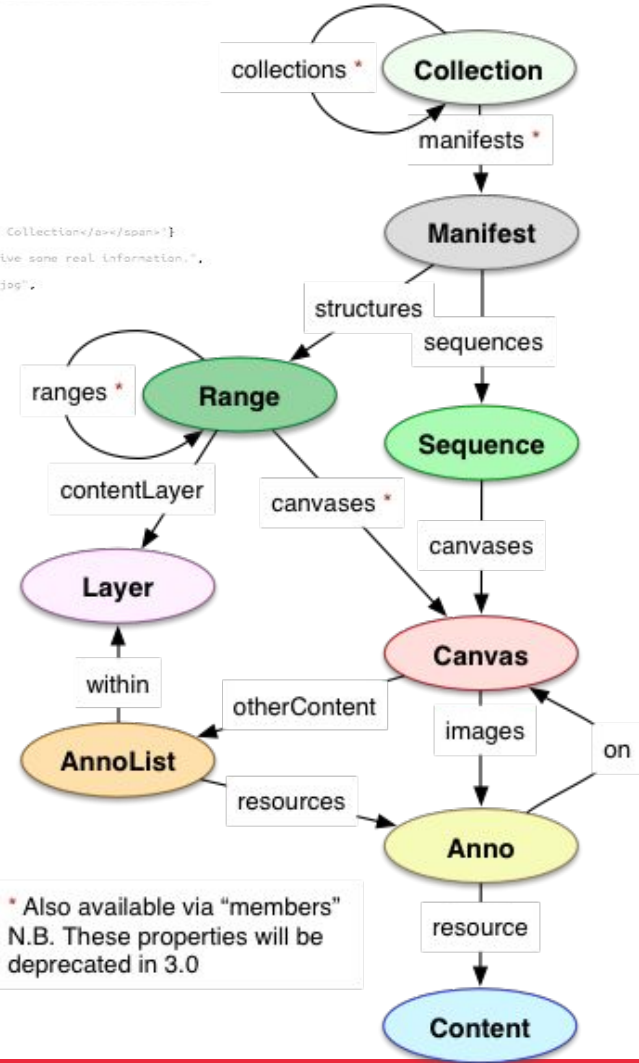
// Presentation Information
"viewingDirection": "right-to-left",
"viewingHint": "paged",
"navDate": "1956-01-01T00:00:00Z",

// Rights Information
"license": "http://example.org/license.html",
"attribution": "Provided by Example Organization",

"logo": {
  "@id": "http://example.org/logos/institution1.jpg",
  "service": {
    "@context": "http://iiif.io/api/image/2/context.json",
    "@id": "http://example.org/service/inst1",
    "profile": "http://iiif.io/api/image/2/profiles/level2.json"
  }
},

// Links
"related": {
  "@id": "http://example.org/videos/video-book1.mpg",
  "format": "video/mpg"
},
"service": {
  "@context": "http://example.org/ns/jsonld/context.json",
  "@id": "http://example.org/service/example",
  "profile": "http://example.org/docs/example-service.html"
},
"seeAlso": {
  "@id": "http://example.org/library/catalog/book1.xml",
  "format": "text/xml",
  "profile": "http://example.org/profiles/bibliographic"
},
"rendering": {
  "@id": "http://example.org/iiif/book1.pdf",
  "label": "Download as PDF",
  "format": "application/pdf"
},
"within": "http://example.org/collections/books/",

// List of sequences
"sequences": [
  {
    "@id": "http://example.org/iiif/book1/sequence/normal",
    "@type": "sc:Sequence",
    "label": "Current Page Order"
    // sequence's page order should be included here, see below...
  }
  // Any additional sequences can be referenced here...
],
}
```



Community work

IIIF Discovery Technical Specification Group

iiif.io/community/groups/discovery/

IIIF Discovery TSG scope:

- **Crawling and harvesting**
 - Content indexing
 - Change notification
 - Import to viewers
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Presentation API constraints

Informing decisions

The Presentation API does not include *semantic* descriptions, but can reference them using **seeAlso**.

IIIF (including the Presentation API) has a *resource-centric* view of the web, not a *service-centric* view (cf Sitemaps/ResourceSync vs OAI-PMH).

Examples

Basic Sitemaps at NC State

- Example demonstrates use of Simple sitemaps without any extensions, including ResourceSync
 - Intended to expand upon existing practice of publishing sitemaps from digital collections
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Sample of NCSU Sitemaps

Sitemap entry for manifests

```
<url>  
  <loc>https://d.lib.ncsu.edu/collections/catalog/bh1141pnc004/manifest</loc>  
  <lastmod>2016-12-13T15:38:19Z</lastmod>  
</url>
```

Sitemap entry for landing page

```
<url>  
  <loc>https://d.lib.ncsu.edu/collections/catalog/bh1141pnc004</loc>  
  <lastmod>2017-03-27T19:33:52Z</lastmod>  
</url>
```

Courtesy Jason Ronallo, North Carolina State University

Prototyping at Europeana

Exploring Sitemaps and extensions for discovery of IIIF resources for harvesting

- Partnership with University College Dublin and National Library of Wales
 - ResourceSync satisfied key needs identified within requirements
 - ResourceSync accommodated additional metadata prototyped in an IIIF Sitemap Extension
 - Follows several synchronization paradigms
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Example of NLW Sitemap Entry

Uses Sitemaps and IIIF Extension

```
<url>  
  <loc>http://newspapers.library.wales/view/3320640</loc>  
  <iiif:Manifest xmlns:iiif="http://iiif.io/api/presentation/2/">  
    http://dams.llgc.org.uk/iiif/newspaper/issue/3320640/manifest.json  
  </iiif:Manifest>  
  <dct:isPartOf>http://dams.llgc.org.uk/iiif/newspapers/3320639.json</dct:isPartOf>  
  <lastmod>2014-11-08</lastmod>  
  <changefreq>monthly</changefreq>  
  <priority>0.8</priority>  
</url>
```

Courtesy Nuno Freire, Europeana

Example of UCD Resource List Entry

Uses Sitemaps and ResourceSync and DCMES as Extensions

```
<url>  
  <loc>https://digital.ucd.ie/view/ucdlib:38491</loc>  
  <rs:ln rel="alternate" href="https://digital.ucd.ie/view/ucdlib:38491"  
    type="application/json" dcterms:conformsTo="http://iiif.io/api/presentation/2.1/" />  
  <rs:ln rel="collection" href="https://digital.ucd.ie/view/ucdlib:38488"  
    type="application/json" dcterms:conformsTo="http://iiif.io/api/presentation/2.1/" />  
  <lastmod>2014-08-24T04:09:09.716Z</lastmod>  
  <changefreq>monthly</changefreq>  
  <priority>0.8</priority>  
</url>
```

Courtesy Nuno Freire, Europeana

Sample of UCD Resource List

Uses Sitemaps, ResourceSync, and Sitemap Image Extension

```
<url>  
  <loc>https://digital.ucd.ie/view/ucdlib:45877</loc>  
  <rs:ln rel="describedby" href="https://data.ucd.ie/api/edm/v1/ucdlib:45877" dcterms:conformsTo="http://www.europeana.eu/schemas/edm/" />  
  <rs:ln rel="describedBy" href="https://data.ucd.ie/api/img/manifests/ucdlib:45877" dcterms:conformsTo="http://iiif.io/api/presentation/2.1/" />  
  <rs:ln rel="collection" href="https://digital.ucd.ie/view/ucdlib:45872" />  
  <image:image>  
    <image:loc>https://iiif.ucd.ie/loris/ucdlib:45904/full/pct:20/0/default.jpg</image:loc>  
    <rs:ln rel="describedby" href="https://iiif.ucd.ie/loris/ucdlib:45904" type="application/json" />  
    <rs:ln rel="alternate" href="https://digital.ucd.ie/view-media/ucdlib:45877/none" />  
    <image:title>Savoy Cinema site works</image:title>  
    <image:caption>view from rear (north east) corner looking south west</image:caption>  
  </image:image>  
  <lastmod>2016-05-30T09:48:29.618Z</lastmod>  
  <changefreq>monthly</changefreq>  
  <priority>1.0</priority>  
</url>
```

Courtesy John Howard, University College Dublin

Conclusions

Strengths

- ResourceSync addresses core requirements for exposing IIIF resources for harvesting
- Can build on publication of existing sitemaps easily
- Leverages *Many-to-One*, *Selective Synchronization*, and *Metadata Harvesting* paradigms
- Can adopt additional extensions to implement needed features
- Plenty of opportunity to contribute; *need more prototypes*

Challenges

- IIIF community's needs for discovery are not necessarily what other sitemap consumers want (e.g. Google)
- Identifying the primary resource influences structure
- Unclear whether search engines support custom extensions, and what ranking impact would be

Thank You!



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