Everything you ever wanted to know about IIIF but were too afraid to ask

A workshop for DPLAfest 2016, Washington D.C.

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Images are fundamental information carriers for cultural heritage
Yet, we hear the following from research & memory organizations....
I am locked into my image delivery software
I need a newer, faster image server
(and I can’t spend much time or money on it)
I want deep zoom (on mobile)
I want to allow users to visually compare objects in the collection…
...with objects from other collections
I want to make it easy for my users to cite and share my images
I want to allow visitors to annotate my images online.
I want to allow embedding of my images in blogs and web pages.
... without losing control of them
And I shouldn’t have to invent any of it.
In short, digital image delivery is...

...too hard
...too slow
...too expensive
...too disjointed
...too ugly

...and we all suffer because of it.
There is a better way...
A Community that develops **Shared APIs**, implements them in **Software**, and exposes interoperable **Content**
IIIF History

- Conceived in 2011
- Evolution of standards
- Adoption by organizations worldwide
IIIF Community

First conference: NYC next month

• Weekly community calls
• iiif-discuss@googlegroups.com
• iiif-announce@googlegroups.com
• Working Groups (manuscripts, museums, newspapers, etc.)
• … all supported by the IIIF Consortium
IIIF: Two Core APIs

**Image API**
“get pixels” via a simple, RESTful, web service

**Presentation API**
Just enough metadata to drive a remote viewing experience
Image Delivery API

Order of Implementation

http://www.example.org/image-service/abcd1234/80,15,60,75/pct:80/345/grey.jpg

region size quality
rotation format

http://iiif.io/api/image/2.0/
Image delivery demo
Image Information API

Information request URI has the form:
http://example.org/{identifier}/info.json

Returns a JSON-LD object describing the image properties and server capabilities
Image Information API

```json
{
    "@context": "http://iiif.io/api/image/2/context.json",
    "@id": "http://images.qdl.gq/iiif/images/81055/vdc_100",
    "protocol": "http://iiif.io/api/image",
    "width": 3984,
    "height": 5857,
    "tiles": [
        {
            "width": 256,
            "height": 256,
            "scaleFactors": [1, 2, 4, 8, 16, 32]
        }
    ],
    "profile": [
        "http://iiif.io/api/image/2/level1.json",
        {
            "formats": [
                "jpg"
            ],
            "qualities": [
                "native",
                "color",
                "gray"
            ],
            "supports": [
                "regionByPct",
                "sizeBy ForcedWh",
                "sizeByWh",
                "sizeAboveFull",
                "rotationBy90s",
                "mirroring",
                "gray"
            ]
        }
    ]
}
```
Presentation API

• **Structure**
  - Collection, Item, Sequence, Parts

• **Properties**
  - Labels, description, license, attribution, links

http://iiif.io/api/presentation/2.0/
Shared Canvas Data Model

• Developed out of the Digital Manuscript Interop Work
• Provides a “lingua franca” for modelling image & text-based digital resources
• Based on Linked Data: Web and annotation-friendly!
Based on Shared Canvas Data Model

"Real World" Manuscript (Lutrell Psalter)

Digital Resources
- Description of fisherman marginalia
- Scholarly commentary
- Tunc exultebant omnia ligna... etc.
- Transcription
- Description of lower marginalia
- Scholarly commentary

Canvas

Digital image

http://www.shared-canvas.org
Image + Presentation = Object
Image + Presentation = Object
Demo: recombining manuscripts

http://demos.biblissima-condorcet.fr/chateauroux/osd-demo/
IIIF: Two More APIs in Beta

**Search API**
Search within an object, such as the full text of a book or newspaper

**Authentication API**
To support login, and differential access to resources.
The Benefits

- Flexibility
- Reuse
- Remix
- Cite
- Annotate
- Software
The Benefits - Flexibility

Easily crop (e.g. blog illustrations)
Easily redesign entire sites
The Benefits - Reuse

Easily repurpose images
The Benefits - Remix

Bibliissima manuscripts
Dispersed documents
(Digital Mushaf)
The Benefits - Cite

E.g. **Embedr**
The Benefits - Annotate

E.g. SimpleAnnotationServer

SimpleAnnotationServer

This is an Annotation Server which is compatible with IIIF and Mirador. This Annotation Server includes a copy of Mirador so you can get started creating annotations straight away. The annotations are stored as linked data in an Apache Jena triple store.

Getting Started

Requires:

• Java 1.7
• maven

To begin working with Mirador and the Simple Annotation Server do the following:

• Download code

git clone https://github.com/glenrobinson/SimpleAnnotationServer.git

• Move into the SimpleAnnotationServer directory.

cd SimpleAnnotationServer

• Start the jetty http server
The Benefits - Software

Image Apps
- Universal Viewer
- Mirador
- Internet Archive Book Reader
- LUNA
- divajs

Image Clients
- OpenSeadragon
- OpenLayers
- Leaflet
- Leaflet JS
- FSI Viewer

Image Servers
- IIP Image
- FSI Server
- LORIS
- CONTENTdm®
- digilib
- LuraTech
Some examples

- DPLA
- Princeton
- Europeana
- Qatar Digital Library
- Cogapp
IIIF & the Digital Public Library of America

Mark A. Matienzo, Director of Technology
Digital Public Library of America / http://dp.la/
mark@dp.la / @anarchivist / @dpla
DPLA as cultural heritage aggregator

- 11.5 million+ items aggregated from US libraries, archives, and museums
- 28+ “Hubs” (primary partners)
- 2,000+ contributing institutions
DPLA partner breakdown

- University libraries 21%
- Public libraries 26%
- Presidential libraries 0.5%
- Museums 11%
- K-12 schools 1%
- Municipal agencies 1%
- International 3%
- Federal libraries 1%
- Historic properties 2%
- Federal agencies 1%
- County agencies 1%
- Encyclopedias 0.2%
- Corporate libraries/archives 1%
- Consortia 1%
- State agencies 2%
- State libraries 1%
- State/national parks 1%
- University departments 1%
- Publishers 1%
- Society/foundation archives/libraries 4%
- Radio/Television 0.2%
- Archives 6%
- Community colleges 3%
DPLA: more than an aggregation

- Over 21 million hits over 6 months; 57% traffic via portal; 43% through API
- Support development of open, community sustaining work
- Facilitate re-use of collections, software, and standards
- Amplify our own efforts, as well as those of communities that are like-minded
Motivations for DPLA network adoption of IIIF

- Promotion and support for open standards
- Improving usability
- Lowering bar for image delivery and reuse both within and outside DPLA
- Supporting annotation on and across cultural heritage resources
Evaluating user experience of delivering images

- Unclear pathways to access objects
- Too many clicks to get to content
- Various image viewers lead to interface inconsistency across providers
- Not only true for portal users, but API users as well!
Impacts on developers using the DPLA API

Expand 'object' to return more than just thumbnail? #1

pj4533 opened this issue on Apr 13, 2013 · 7 comments

pj4533 commented on Apr 13, 2013

Any plans to return more than the thumbnail in an item's object field? I'd really like direct links to larger images.

Based on the ingestion code, it looks like that URL is pretty custom per-provider.

For example the Georgia urls are done by this script:

https://github.com/dpla/ingestion/blob/master/lib/akamod/georgia_identify_object.py#L40

In order to get actual images, I could do the same sort of thing in my client code, but then I couldn't just talk to the DPLA api, I have to have logic around each provider inside the DPLA.
DPLA Hubs with IIIF implementations

- **Production: image & presentation APIs**
  - Harvard University Library
  - Digital Commonwealth/Boston Public Library
  - Internet Archive (beta)

- **Production: image API only**
  - California Digital Library (Calisphere beta)

- **Under development**
  - ARTstor
  - David Rumsey Map Collection
Implementation issues for DPLA

- Representation of IIIF resources in EDM/DPLA Metadata Application Profile
- Metadata about IIIF images not available from harvest sources
- UX consistency for IIIF/non-IIIF images
- Impact of IIIF on Hubs’ use statistics; guidance on analytics
- Uncertainty about provision of IIIF services
Next steps for a DPLA pilot …?

- Ensure IIIF resources are identifiable in metadata, either through harvesting or creating URIs from available identifier(s)
- Develop guidance for analyzing usage statistics
- Prototype, prototype, prototype!
iiif at princeton

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current

- member of the IIIF Consortium
- Jon Stroop is a IIIF editor, maintains Loris
- digital collections served with Loris
  - http://pudl.princeton.edu/
future: lots of data sources to integrate

- metadata
  - catalog (voyager)
  - finding aids
- images
  - existing collections
  - ongoing digitization
future: Hydra on the backend

- building Plum to manage building objects
  - initial focus on books, other content types coming soon
- Hydra stack:
  - Fedora 4, Solr 5
  - HydraWorks, CurationConcerns
future: lots of clients for the same data

- catalog (blacklight)
- finding aids
- exhibits (spotlight)
- geodata (geo blacklight)
- broader IIIF universe
future: IIIF is our strategy for reusable content

- build manifests in Plum
- deliver images with Loris
- presentation api to drive viewer(s)
- index manifests to pull objects into exhibits
Hydra / Repository Infrastructure

- **Solr**: Search and retrieval engine
- **PostgreSQL (PostGIS)**: RDBMS for geospatial data
- **Isilon**: Storage system
- **Fedora**: Hypothesis-driven authoring system
- **GeoServer**: Web mapping platform
- **Image Server**: Image hosting service
- **Static Files**: Static content hosting
- **Other Media Server(s)**: Additional media storage

Public Interfaces

- **Load Balancer**
- **Pomegranate (Exhibits)**
- **Special Projects**
- **GeoBlacklight**
- **IIIF Auth (Implemented in Plum)**

Providers

- **Studio Maps Staging**
- **PULFA**
- **Bib. Data**
- **Voyager**
- **ArcCatalog**
- **Google Drive (RBSC)**
- **Browser Uploads**

(Images)

(Metadata)

(GIS)

Note: Arrows point from the server that initiates interaction to the server that supports one or more CRUD operations.
Loris: https://github.com/pulibrary/loris

Plum: https://github.com/pulibrary/plum/

PUDL: http://pudl.princeton.edu/

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Europeana & IIIF
What we are planning and why?

David Haskiya (and Antoine Isaac) | DPLAfest 2016

Danse de trois faunes et trois bacchantes, Hieronymus Hopfer, Bibliothèque municipale de Lyon, Public Domain
Outline

• Why do we want to support IIIF?
• How will we support IIIF?
• When will we support IIIF?
Why support IIIF?
Why support IIIF?

Our mission: “We transform the world with culture! We want to build on Europe’s rich heritage and make it easier for people to use, whether for work, for learning or just for fun.”

Supporting IIIF will help in reaching all these goals. We may even help transform our little GLAM world!
What our users say

• Immediate access to high-res imagery and multi-page documents is something all users want
• Some users have specific needs
  • Designers looking for visual inspiration
  • Art historians who want to see the shape of the brush strokes and other fine details
• Historically Europeana has been very metadata centric. New version of our portal will take steps towards rich media.
Some providers are moving to IIIF

We want to encourage this!
How will we support IIIF?
Display

• Beta version of our newest Collections portal comes with a proof of concept IIIF-viewer.

• We have 3 data partners who have given leave for us to display their IIIF-compatible collections:
  
  Digital Bodleian Library, University of Heidelberg, and National Library of Wales

• Implementation is deliberately basic. UX research needed before we go ambitious.
Shared image service

- We have 3500 data partners. Should they all individually develop an IIIF-server?
  - Some can and will. But for most it’s beyond their technical or financial capabilities.
- So we develop a shared image service, IIIF compatible, for use by Europeana data partners who want to support IIIF but don’t have the means
  - A test version is being rolled out now

http://iiif.europeana.eu/AZ_1927_01_04_0001

http://iiif.europeana.eu/AZ_1927_01_04_0001/info.json
Data model

We are updating our Europeana Data Model mapping guidelines to include instructions on how to provide IIIF images and manifests.
Community

- Efforts in coordination with the IIIF community
- Europeana plans to become a member of the IIIF consortium
- We will promote IIIF adoption in our network
- We participate to the elaboration of the specs, current and coming
  - e.g., participation on extending IIIF for audio and AV content
Newspapers, full text

Fitting full-text content within IIIF manifests and EDM (and Web Annotations)

Distribution

- IIIF images and manifests provided to Europeana directly or created by the shared IIIF image service will be retrievable via the Europeana REST API
- The REST API search call will be extended to allow for filtering to only items with IIIF resources
- As our REST-API already supports queries on image resolution combined with structured rights, Kennisland has already developed a IIIF compatible service, Embedr.eu, with high-res, embeddable and reusable images.
Roadmap

- **DONE** Europeana Collections Beta launches with IIIF-viewer (3 pilot datasets)
- **DONE** EDM guidelines updated to include rules for how to provide IIIF images and manifests
- **Late Q2 2016**, Shared IIIF-service for testing, REST-API allows retrieval of IIIF resources
- **Q3 2016**, Shared IIIF-service in production

*Sainte Cécile chantant les louanges de Dieu*, Etienne Picart, Bibliothèque municipale de Lyon, Public Domain
Three takeaways

• Why does Europeana want to support IIIF?
  • Because it helps us fulfill our mission and it helps our users

• How will Europeana support IIIF?
  • By display, by sharing services and IIIF-resources, by joining and supporting the community

• When will Europeana support IIIF?
  • Started, and gradually more and more throughout 2016
Demo: Qatar Digital Library

Qatar Digital Library is free to use and reuse.

This growing archive covers modern history and culture of the Gulf and wider region, available online for the first time.
Multiple viewers

labs.cogapp.com/iiif
Multilingual manifests
Drag and drop
IIIF for gaming? labs.cogapp.com/transcriptinator
IIIF for VR?

labs.cogapp.com/tc
Q&A Session

International
Image
Interoperability
Framework

http://iiif.io/