IIIF Implementation Guide

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Introduction

Why IIIF?

The best formulation of the need for IIIF we've seen is by David Newbury in a presentation about his work for the Carnegie Museum of Art (https://www.slideshare.net/workergnome/iiif-for-small-projects):

- Everyone does their own thing, but we all do the same thing.
- Everyone has rules, but no one understands them.
- Large zoomable images require complicated technology stacks.
- One object may have many pictures.
- We want to share, not give away.

IIIF helps solve all of these problems by:
- Defining metadata standards for dealing with high resolution images.
- Providing a consistent API for accessing images, the metadata that surrounds them, and how to present and associate images together.

Why adopt IIIF?

For institutions without deep zoom functionality, the tiling and deep zoom aspects of the IIIF Image API are very compelling. For art museums, however, deep zoom is a problem you've likely already resolved and is not a compelling argument for adding additional software to your stack.

The more compelling -- but harder to adopt and see the benefits of -- part of IIIF is the "interoperability" that comes with adopting the IIIF Presentation API as well as the Image API. During our workshop, a participant noted that art museum museum management may not be motivated by the idea that it's easier to share their objects. We suggest that instead of thinking as "interoperability" as cross-institution -- what we call "horizontal" interoperability -- you think of interoperabilty's "vertical" benefits. Vertical interoperability benefits your institution, internally. As the standard is adopted by more and more museums and more software tools, institutions that have adopted IIIF will be able to leverage new tools for storytelling, scholarship, digitization post-production, and user/audience engagement. If your toolset leverages IIIF, you won't be left with siloed solutions. In fact, as pieces of your infrastructure age, you will be able to replace them with newer options that speak the same language -- IIIF -- as the previous pieces.

IIIF Implementation Steps

IIIF has four APIs; each useful on their own, but more powerful when combined.

The first step is to implement the Image API. This is simply to make your images available via the Image API URI scheme (either v1 or v2). You'll likely install an image server and provide a viewer as part of this step.

The second step is to adopt the IIIF Presentation API. This step generates the manifests that describe and group object images, and publishes them for use by the public.

The third step is to think about enriching your images assets with enhanced data in the presentation API. Depending on your need, this could be done immediately after or while adopting the presentation API, or it may be something you don't get to for years.

Depending on your institution's use cases, you'll want to review the Authentication API and Search API and decide when -- or if -- they improve your institution's image access.

Image API

You can do a lot by just adopting the Image API. It's reasonable to adopt the Image API as a first phase, and then consider how you want to adopt the additional IIIF APIs in further phases.

Integrating the Image Server

Resolution is the biggest part of configuring an image server. Resolution is how the image server takes a IIIF image ID and finds the image resource on your own systems. Cantaloupe, for instance, comes with resolvers for S3, Microsoft Azure, web-hosted files and filesystems. Additional resolvers can be written (see the [documentation on resolvers](#)), and the existing resolvers will need to be configured with rules specific to your environment. You should make plans to do configuration or coding to reflect your environment and where your images are currently stored.

External Use of the Image API

Choosing a Viewer

There are a lot of great viewers available for IIIF, and they all support the core "deep zoom" benefit of IIIF. Therefore, your decision making on a viewer should depend on what your use case is.

Standalone Viewers

Although standalone viewers are embedded in a webpage, they can take up the entire viewing pane. They are definitely an "image first" approach to displaying your images. The attendant metadata is available from within the viewer, pulled from the IIIF manifest. Therefore, if you want to display additional data with your images that is not part of the manifest you'll want to either figure out how to add the data to your manifest (if appropriate), use the `related` element of the manifest to point users to the additional data, or choose a different approach. Many institutions display a small image and data on a webpage, with a link to launch a rich IIIF viewer from there. (This is often awkward from a user experience perspective. See "Integrating the Viewer" below for suggestions.)

You currently have two choices for standalone viewers: Universal Viewer and Mirador. Both are great. Mirador is a better choice if your primary users are scholarly -- it allows for comparison of multiple images and creation and display of annotations. Universal Viewer is great for more complicated assets -- multi-page objects, and scanned books with OCR derivatives. Universal Viewer will likely be the only viewer to support audio and visual material when the presentation API 3.0 is released. Universal Viewer does not display annotations. If you plan to use annotations, you'll want to use Mirador or an embedded viewer.

Embedded Viewers

Embedded viewers are useful for including IIIF images within a webpage. The two most popular are Open Seadragon and Leaflet. Open Seadragon is familiar to many in the museum world already, and is easy to use and embed in web pages. Leaflet comes out of the mapping world and has the advantage of numerous plugins. It's great if you want to present images for comparison with a magnifying glass or slider, for instance. Leaflet also allows you to present annotations – see the following demo by Jack Reed:
https://bl.ocks.org/mejackreed/2724146adfe91233c74120b9056fba06

Integrating the Viewer

What follows are two good examples of embedding viewers -- you likely won't do exactly the same as either of these, but they include things to think about for your own implementation.

http://digital.bodleian.ox.ac.uk/inquire/Discover/Search/#/?p=c+0,t+,rsrs+0,rsps+10,fa+,so+ox%3Asort%5Easc,scids+,pid+eba7435d-673e-449b-8a8f-bd644ee88ea4,vi+14c302c4-44d4-4356-86b0-bb3602d195e5

The above example from the Bodleian has a single-image viewer (in this case OpenSeadragon) embedded within their collection record page.   Note the three IIIF-related logos as the bottom of the metadata block. The "IIIF" logo is a draggable IIIF manifest link that can be dragged to another window to load into a standalone tool or viewer. (Source code for the drag and drop is here: http://zimeon.github.io/iiif-dragndrop/) It can also be clicked to open and view the object manifest. The "UV" logo opens this item in the Bodleian's Universal Viewer in a new browser window. The "M" logo opens the item in the Bodleian's Mirador instance in a new browser window. While this is an "everything and the kitchen sink" approach to IIIF access, adding a draggable IIIF logo to your object pages is a great first step to make your IIIF implementation obvious to serious users of your content. Launching out to a viewer is a relatively straightforward way to add the additional capabilities of the viewer of your choice to your collection site without a major site redesign.

NCSU has UV in their collection record page, front-and-center:
https://d.lib.ncsu.edu/collections/catalog/mc00020-006-bx0006-005-001#?c=0&m=0&s=0&cv=0&z=-1557.1815%2C-209.1171%2C8863.3631%2C4563.2342
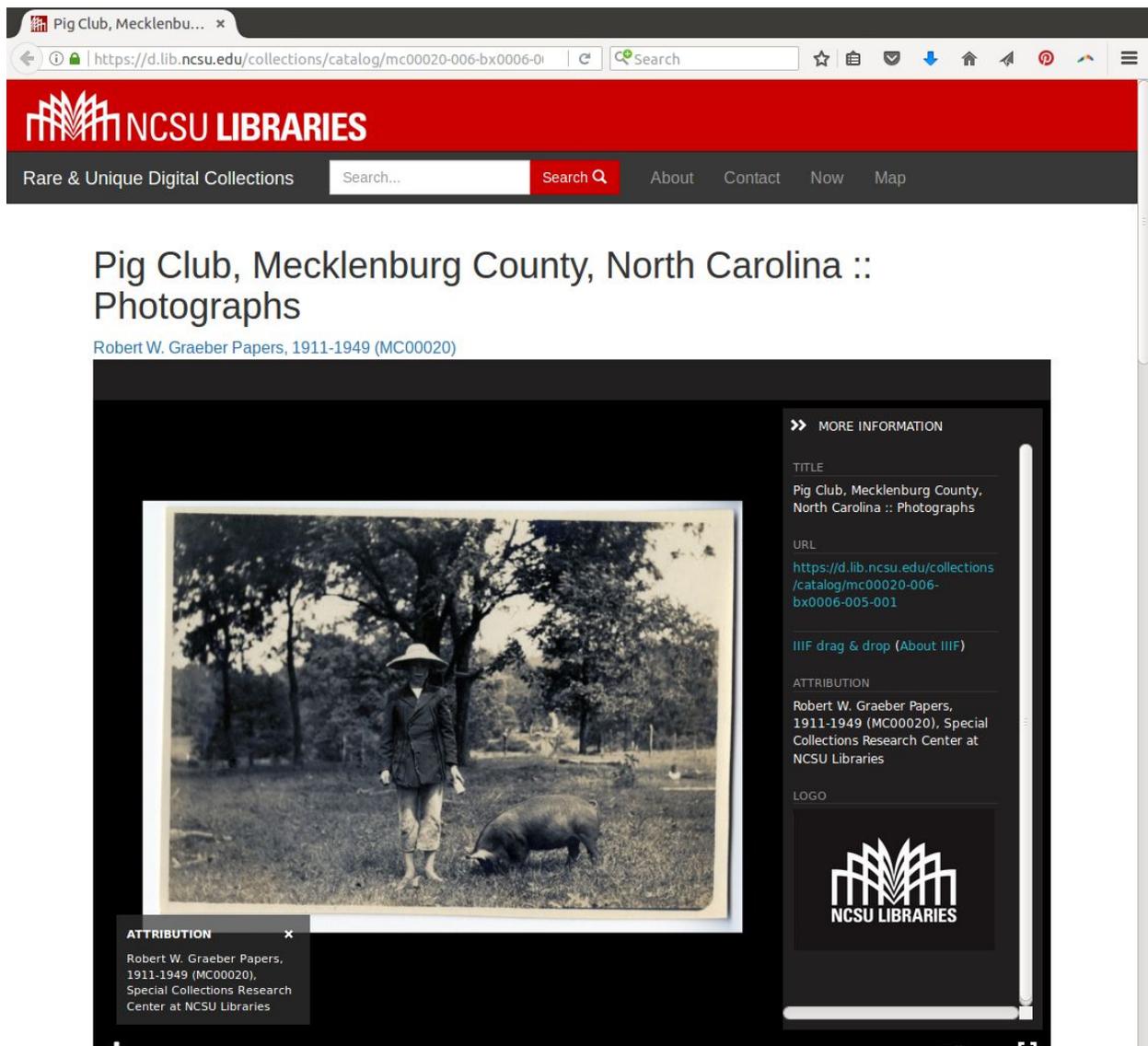
In this case, Universal Viewer is embedded directly in the collection item view, displaying metadata encoded in the manifest. They include a draggable IIIF link, as well as an "About IIIF" for context.

Internal Use of the Image API

While the external use of IIIF enabled images is the obvious use case, we believe there are a lot of opportunities to improve your internal stakeholder's experience using IIIF. For instance, if

your internal users use Slack, you should consider rolling out the IIIF slackbot, which makes it easy for them to request manifest URIs or build lightboxes of grouped images.

You should consider a "IIIF Toolbox for this asset" page for internal users where they could drop in one or many URIs and review useful tools like University College Dublin's crop tool or the Leaflet comparison tools. An alternative would be to launch useful tools from internal Collection management system.

IIIF Presentation API

Publishing Manifests

You can either create an API that will compose your manifests "on demand" or you can statically generate your manifests (with a script) at one time. You will want consistent URLs that do not change over time.

HTTPS and CORS

We recommend you host your IIIF content with SSL security. Without HTTPS enabled your content will not be able to fulfill the interoperable promise of IIIF. For more information, see this blog post by Jack Reed: https://www.jack-reed.com/2017/05/23/the-case-for-serving-your-iiif-content-over-https.html which includes some low cost and free options for SSL certificates.

Item Manifests

Each of your object records will need an item manifest. Whether created dynamically or statically generated, you will need to map your existing data to appropriate elements of a manifest. See Appendix B for sample manifest for your institution.

Collection manifests

We recommend that you create a top-level collection manifest and subcollection manifests. The subcollection manifests can be generated based on collection hierarchy, or existing search facets. We think the Wellcome (https://wellcomelibrary.org/service/collections/) is one of the best examples of collection manifests, presenting a top-level collection that says "Browse by Collection", "Browse by Topic", or other facets. If possible, item manifests for items within a collection should include a `within` element containing the URI of the collection manifest.

Enhanced Data

"Related" links

In order for your institution to be visible when your objects are viewed in external systems, you would want to add a `related` element to your manifest with a link to the object page on your collection website. For similar reasons, adding a link to your institutional logo in the manifest logo block is recommended.

If there are existing educational materials online about the object or its exhibition history, those can also be presented in the `related` element.

Annotations

IIIF makes annotating images easy, but careful thought must be given to use cases, as web annotations are a very broad methodology. Institutional use case should inform the choice of annotation technology. For example, conservators might benefit from authoring annotations in Mirador to be stored in Simple Annotation Server, while educators might prefer read-only annotations

At present there are no off-the-shelf tools for user friendly display of annotations to the public. However, the annotation framework should enable straightforward configuration of tools like Mirador for scholarly reuse or Leaflet for storytelling. More sophisticated display of annotations will require some custom development, but the results can be impressive with minimal work. (See the Wellcome's Sleep Stories quilt: http://ghp.wellcomecollection.org/annotation-viewer/quilt/ for a good example.)

If annotations are created by staff, you will need an annotation server. These can be standalone servers like Simple Annotation Server or annotation stores built into other tools like Omeka-S. If annotations are only used for presentation purposes, you may be able to export your existing data as static annotations on canvases, eliminating the need for an annotation server.   The IIIF-Awesome repo has a list of annotation servers: https://github.com/IIIF/awesome-iiif#annotation-servers

IIIF Authentication API

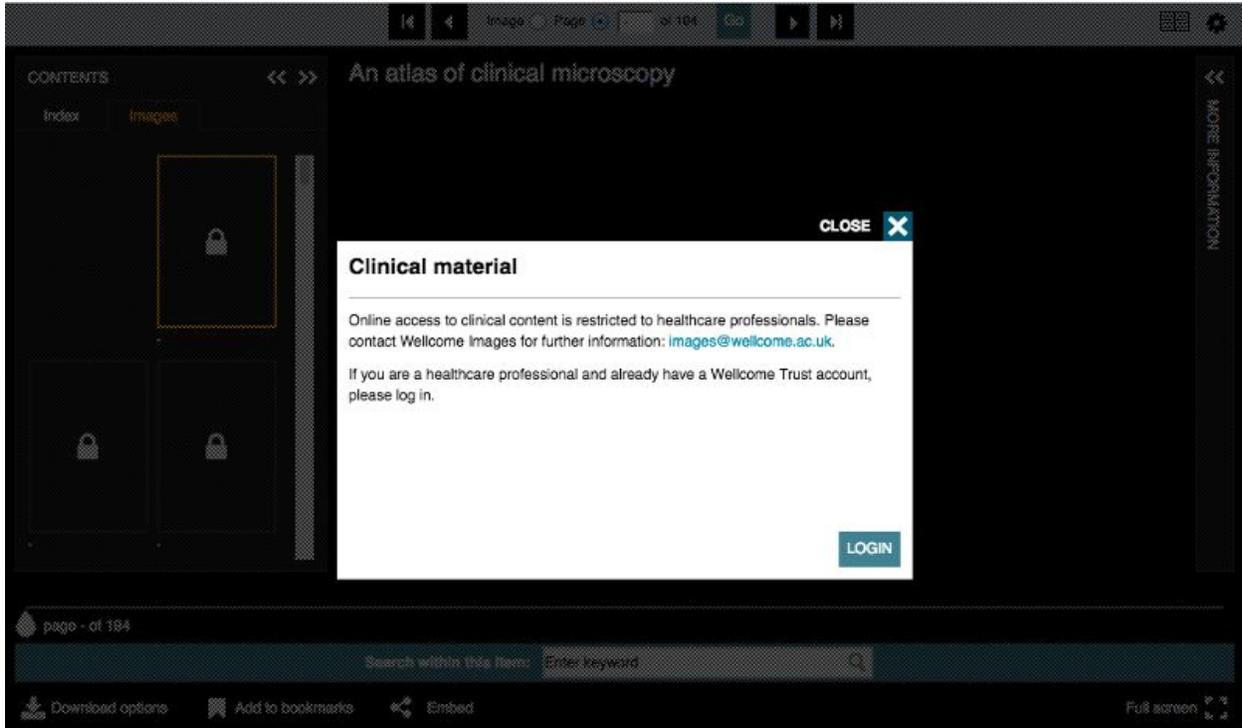The IIIF Authentication API supports the following interaction patterns:

Login

The Login pattern is what we traditionally think of as authentication. The user will be required to log in using a separate window with a UI provided by an external authentication system.

Click-through

The user will be required to click a button within the client using content provided in the service description.
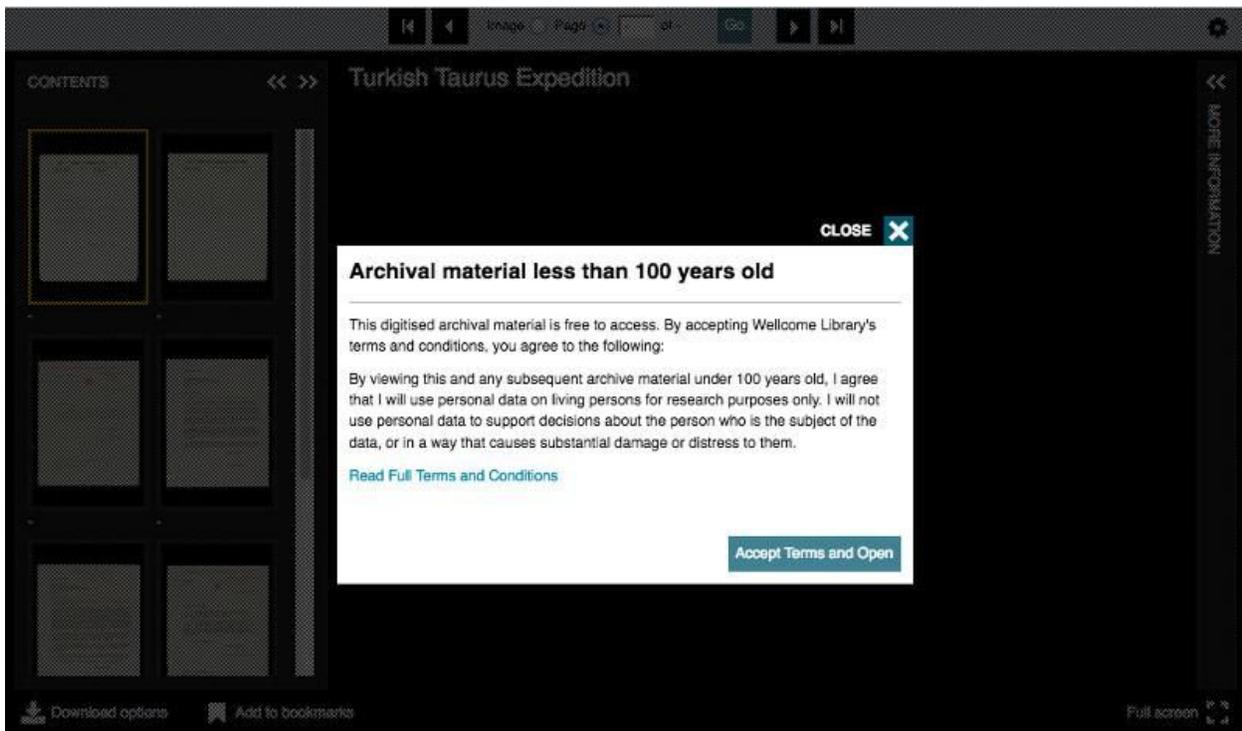
Kiosk

The user will not be required to interact with an authentication system, the client is expected to use the access cookie service automatically. You may consider using this authentication mode for internal exhibit software that accesses non-public images.

External

The user is expected to have already acquired the appropriate cookie, and the access cookie service will not be used at all.

Questions to consider

- Will you need to restrict access to any IIIF resources?
- Will you have to provide degraded access to any resources?
- Which of the above interaction patterns might apply to your situation?

Authentication API Resources

The Auth Demonstrator https://iiifauth.digtest.co.uk/ has example manifests for implementation the various IIIF authentication modes.

Public and Private Image Servers

One useful "trick" that some institutions are using is to use two image servers -- one internal with wider access and larger images for institutional users -- and one external for the public. By limiting what's available on the public image server, these institutions effectively partitioning their users into two roles without the use of an authentication system.

IIIF Search API

Because most art museums do not have many assets with OCRed text, we do not recommend you adopt the IIIF Search API. You do not need to take search capability into consideration for your choice of viewer.

We do recommend you participate or monitor the IIIF Discovery group, which is focused on increasing the discoverability of IIIF assets.

IIIF Community Participation

We recommend that at a minimum you read the quarterly IIIF newsletters, available at http://iiif.io/news/ to keep up to date on IIIF. You can receive the newsletter and major

announcements in the low volume *iiif-announc*e group:
https://groups.google.com/forum/#!forum/iiif-announce.

Beyond that, we would recommend joining the IIIF Museums Community Group
(http://iiif.io/community/groups/museums/) which meets virtually the first Tuesday of every
month at 11:00am Eastern. Even if you don't join every month, it's a great place to share
experiences, ask questions, hear what is going on with IIIF in the museums community, and to
announce your IIIF accomplishments to a group of like-minded peers.

The IIIF Slack channel is a good place for online discussion and problem solving; join it by filling
out the online form for an automatic invitation. We recommend the museums, technical, and
general channels.

Finally, IIIF is a group that depends on community participation. We encourage you to host a
local meetup or event, volunteer to show your work in one of the community calls, or speak at a
conference. Please feel free to contact the IIIF Community and Communications Officer, Sheila
Rabun, at srabun@iiif.io for additional questions around IIIF community participation.

Appendix A: Metadata Mappings & Sample Manifest

Metadata Mapping for Crystal Bridges Museum of American Art

These tables suggest a mapping between metadata exposed in the current Crystal Bridges
collections website and elements in a IIIF manifest. Like the example manifest, this mapping
uses Andrew Wyeth's "Airborne" as its starting point. NB: Neither the example manifest nor the
metadata mapping was informed by the mappings created by the eMuseum 5.1 IIIF features, so
decisions about element mapping made here may not correspond to those made by the Gallery
Systems development team.

Manifest-level Elements

Element	Value
@id	*URI for the manifest, e.g.* `"https://iiif.crystalbridges.org/380/manifest.json"`
@type	`"sc:Manifest"`
@context	`"http://iiif.io/api/presentation/2/context.json"`
label	"Andrew Wyeth (1917 - 2009), Airborne, 1996, Tempera on panel, Crystal Bridges Museum of American Art"

`description`	"A sense of unease in an immaculate world pervades Andrew Wyeth's Airborne. The painting depicts the artist and his wife Betsy's home on Benner Island, Maine. Wyeth painted Airborne in a contrasting palette of bright greens and dull grays that vividly conveys the site's weather, tides, and seasonal rhythms. The floating feathers in the foreground add an element of surprise to the painting. The artist suggests here, as in many of his paintings, that something is taking place just beyond the frame. He invites the viewer to speculate what is happening to the ducks and geese who summer on the pond next to his house: are they attacked by one of the island's resident eagles? Or, more mundanely, might the floating feathers simply be the molting of seagulls? It seems more likely Wyeth indicated unexpected, sudden violence here. In his world, reality is always mysterious and illusory: like feathers on a breeze, only momentary."
`attribution`	"Crystal Bridges Museum of American Art, Bentonville, Arkansas"
`logo`	"https://crystalbridges.org/wp-content/uploads/2015/11/INST_V_CMYK_pos-01-e1447789574343.png"

`related`	*The* `related` *element should include a link to the object record page on Crystal Bridges' website:*
	`{`
	
	`"@id":"http://collection.crystalbridges.org/objects/380/airborne",`
	` "label":"Catalog entry at Crystal Bridges Museum of American Art",`
	` "format":"text/html"`
	`}`

`metadata`	*See table below*

Metadata Block

Label	Value
Title	Airborne
Artist	Andrew Wyeth (1917 - 2009)
Date	1996
Medium	Tempera on panel
Dimensions	40 x 48 in. (101.6 x 121.9 cm) Framed: 47 × 54 3/4 in.
Inscriptions	verso, on u.r. panel, in white paint: Windblown verso, on u.r. frame, in pencil: Windblown

Signed	l.r.: Andrew Wyeth
Credit Line	Promised Gift to Crystal Bridges Museum of American Art, Bentonville, Arkansas
Accession Number	*While "Airborne" does not show an accession number, other objects on Crystal Bridges' instance of eMuseum do, so this should be included.*

Sequence-level Elements

Element	Value
@type	"sc:Sequence"
label	"default sequence"
viewingHint	"individuals"
canvases	*All images for the object should be listed here, with the primary image appearing first.*

Sample Manifest for Crystal Bridges Museum of American Art

This is a suggested item-level manifest for Airborne at a proposed IIIF presentation endpoint at Crystal Bridges Museum of American Art. Note that the canvas in the default sequence does not depict the artwork, but rather includes a different painting so that it can be tested in IIIF clients.

```
{
  "@type":"sc:Manifest",
  "@context":"http://iiif.io/api/presentation/2/context.json",
  "@id":"https://iiif.crystalbridges.org/380/manifest.json",
  "label":"Andrew Wyeth (1917 - 2009), Airborne, 1996, Tempera on panel, Crystal
Bridges Museum of American Art",
  "description":"A sense of unease in an immaculate world pervades Andrew Wyeth's
Airborne. The painting depicts the artist and his wife Betsy's home on Benner Island,
Maine. Wyeth painted Airborne in a contrasting palette of bright greens and dull grays
that vividly conveys the site's weather, tides, and seasonal rhythms. The floating
feathers in the foreground add an element of surprise to the painting. The artist
suggests here, as in many of his paintings, that something is taking place just beyond
the frame. He invites the viewer to speculate what is happening to the ducks and geese
who summer on the pond next to his house: are they attacked by one of the island's
resident eagles? Or, more mundanely, might the floating feathers simply be the molting
of seagulls? It seems more likely Wyeth indicated unexpected, sudden violence here. In
his world, reality is always mysterious and illusory: like feathers on a breeze, only
momentary.",
  "attribution":"Promised Gift to Crystal Bridges Museum of American Art, Bentonville,
Arkansas",
  "metadata":[
    {
      "label":"Title",
      "value":"Airborne"
    },
    {
      "label":"Artist",
      "value":"Andrew Wyeth (1917 - 2009)"
    },
    {
      "label":"Date",
      "value":"1996"
    },
    {
      "label":"Medium",
      "value":"Tempera on panel"
    },
    {
      "label":"Dimensions",
      "value":"40 x 48 in. (101.6 x 121.9 cm) Framed: 47 × 54 3/4 in."
    },
    {
```

```
      "label":"Credit line",
      "value":"Promised Gift to Crystal Bridges Museum of American Art, Bentonville,
Arkansas"
    },
    {
      "label":"Inscriptions",
      "value":"verso, on u.r. panel, in white paint: Windblown verso, on u.r. frame,
in pencil: Windblown"
    },
    {
      "label":"Signed",
      "value":"l.r.: Andrew Wyeth"
    }
  ],

"logo":"https://crystalbridges.org/wp-content/uploads/2015/11/INST_V_CMYK_pos-01-e1447
789574343.png",
  "related":[
    {
      "@id":"http://collection.crystalbridges.org/objects/380/airborne",
      "label":"Catalog entry at Crystal Bridges Museum of American Art",
      "format":"text/html"
    }
  ],
  "sequences":[
    {
      "@id":"https://manifests.britishart.yale.edu/sequence/340",
      "@type":"sc:Sequence",
      "label":"default sequence",
      "viewingHint":"individuals",
      "canvases":[
        {
          "images":[
            {
              "resource":{
                "@type":"dctypes:Image",
                "service":{

"profile":"http://library.stanford.edu/iiif/image-api/1.1/conformance.html#level1",

"@id":"https://images.britishart.yale.edu/iiif/9f850fdb-7d30-407b-bc7c-a4dea3af2d5e",
                  "@context":"http://iiif.io/api/image/1/context.json"
                },
                "format":"image/jpeg",
                "width":6228,

"@id":"https://images.britishart.yale.edu/iiif/9f850fdb-7d30-407b-bc7c-a4dea3af2d5e/fu
ll/full/0/native.jpg",
                "label":"cropped to image, recto, unframed",
                "height":4422
```

```
                },
                "@type":"oa:Annotation",
                "motivation":"sc:painting",

"@id":"https://manifests.britishart.yale.edu/annotation/ba-obj-340-0003-pub",
                "on":"https://manifests.britishart.yale.edu/canvas/ba-obj-340-0003-pub"
              }
            ],
            "@type":"sc:Canvas",
            "width":6228,
            "@id":"https://manifests.britishart.yale.edu/canvas/ba-obj-340-0003-pub",
            "label":"cropped to image, recto, unframed",
            "height":4422
        }
      ]
    }
  ]
}
```

Metadata Mapping for Dallas Museum of Art

These tables suggest a mapping between metadata exposed in the current DMA collections website and elements in a IIIF manifest. Like the example manifest, this mapping uses the DMA's portrait of Rachel Leeds Kerr as its starting point.

Manifest-level Elements

Element	Value
`@id`	*URI for the manifest, e.g.* `"https://iiif.dma.org/340/manifest.json"`
`@type`	`"sc:Manifest"`
`@context`	`"http://iiif.io/api/presentation/2/context.json"`
`label`	"Charles Willson Peale (American, 1741 - 1827), Rachel Leeds Kerr, 1790, Oil on canvas, Dallas Museum of Art, 1989.23, Paintings"
`description`	"Rachel Leeds Kerr was the wife of Lt. David Kerr, a justice of the peace in Talbot, Maryland, and member of the Maryland House of Delegates. Like all of Charles Willson Peale's works, this portrait has a linear quality, featuring strongly marked contour lines and a careful delineation of materials-largely due to Peale's self-taught background, which not even two years' study in London with Benjamin West could totally soften. Born in Maryland but based in Philadelphia for most of his career, Peale was not only one of early America's most successful artists, he also helped engineer the United States' artistic future. Besides founding the nation's two earliest art academies, he trained virtually every member of his family-especially his children, all named after famous European artists-to become painters, as well. At the Peale Museum in Philadelphia's Independence Hall, the artist exhibited natural history specimens, natural and scientific curiosities, and life portraits of the historical and cultural figures who had led to the creation of the United States. Thus, in both the public and private spheres, Peale was one of the leading figures to promote and disseminate culture in the new United States."
`attribution`	"Dallas Museum of Art, gift of the Pauline Allen Gill Foundation"
`logo`	"https://www.dma.org/sites/default/files/dma-logo.png"
`related`	*The* `related` *element should include a link to the object record page on DMA's website:* `{` `"@id":"https://collections.dma.org/artwork/5170939",` `"label":"Catalog entry at the Dallas Museum of Art",`

<table>
<tr><td></td><td>

```
 "format":"text/html"
},
```

It may also include links to essays about the object's material and period:

```
{
    "@id":"https://collections.dma.org/essay/1jBdPBbX",
    "label":"Learn more about primer and unprimed canvas",
    "format":"text/html"
},
{
    "@id":"https://collections.dma.org/essay/Jl9M75jv",
    "label":"Learn more about the American and Revolutionary
War",
    "format":"text/html"
}
```

</td></tr>
<tr><td>`metadata`</td><td>*See table below*</td></tr>
</table>

Metadata Block

Label	Value
Maker	Charles Willson Peale (American, 1741 - 1827)
Date	1790
Material and Technique	Oil on canvas
Classification	Paintings
Dimensions	Canvas dimensions: 36 1/4 × 27 1/2 in. (92.08 × 69.85 cm) Framed dimensions: 43 × 34 1/4 × 2 3/4 in. (109.22 × 87 × 6.99 cm)
Department	American Art
Location	American Art - 18th Century, Level 4
Credit Line	Dallas Museum of Art, gift of the Pauline Allen Gill Foundation
Accession Number	1989.23

Sequence-level Elements

Element	Value

@type	"sc:Sequence"
label	"default sequence"
viewingHint	"individuals"

rendering	*As the current DMA site allows users to download a version of the object, the rendering block can point to the same version to support downloads in IIIF clients, e.g.:*
	
	`{`
	`    "@id":`
	`"https://collections.dma.org/download/images/79355038432881_original`
	`.jpg",`
	`    "format": "image/jpeg",`
	`    "label": "Download this image"`
	`}`

canvases	*All images for the object should be listed here, with the primary image appearing first.*

Sample Manifest for Dallas Museum of Art

This is a suggested item-level manifest for [Rachel Leeds Kerr](#) at a proposed IIIF presentation endpoint at Dallas Museum of Art. Note that the canvas in the default sequence does not depict the artwork, but rather includes a different painting so that it can be tested in IIIF clients.

```
{
  "@type":"sc:Manifest",
  "@context":"http://iiif.io/api/presentation/2/context.json",
  "@id":"https://iiif.dma.org/340/manifest.json",
  "label":"Andrew Wyeth (1917 - 2009), Airborne, 1996, Tempera on panel, Crystal
Bridges Museum of American Art",
  "description":"A sense of unease in an immaculate world pervades Andrew Wyeth's
Airborne. The painting depicts the artist and his wife Betsy's home on Benner Island,
Maine. Wyeth painted Airborne in a contrasting palette of bright greens and dull grays
that vividly conveys the site's weather, tides, and seasonal rhythms. The floating
feathers in the foreground add an element of surprise to the painting. The artist
suggests here, as in many of his paintings, that something is taking place just beyond
the frame. He invites the viewer to speculate what is happening to the ducks and geese
who summer on the pond next to his house: are they attacked by one of the island's
resident eagles? Or, more mundanely, might the floating feathers simply be the molting
of seagulls? It seems more likely Wyeth indicated unexpected, sudden violence here. In
his world, reality is always mysterious and illusory: like feathers on a breeze, only
momentary.",
  "attribution":"Promised Gift to Crystal Bridges Museum of American Art, Bentonville,
Arkansas",
  "metadata":[
    {
      "label":"Title",
      "value":"Airborne"
    },
    {
      "label":"Artist",
      "value":"Andrew Wyeth (1917 - 2009)"
    },
    {
      "label":"Date",
      "value":"1996"
    },
    {
      "label":"Medium",
      "value":"Tempera on panel"
    },
    {
      "label":"Dimensions",
      "value":"40 x 48 in. (101.6 x 121.9 cm) Framed: 47 × 54 3/4 in."
    },
```

```
    {
      "label":"Credit line",
      "value":"Promised Gift to Crystal Bridges Museum of American Art, Bentonville,
Arkansas"
    },
    {
      "label":"Inscriptions",
      "value":"verso, on u.r. panel, in white paint: Windblown verso, on u.r. frame,
in pencil: Windblown"
    },
    {
      "label":"Signed",
      "value":"l.r.: Andrew Wyeth"
    }
  ],

"logo":"https://crystalbridges.org/wp-content/uploads/2015/11/INST_V_CMYK_pos-01-e1447
789574343.png",
  "related":[
    {
      "@id":"http://collection.crystalbridges.org/objects/380/airborne",
      "label":"Catalog entry at Crystal Bridges Museum of American Art",
      "format":"text/html"
    }
  ],
  "sequences":[
    {
      "@id":"https://manifests.britishart.yale.edu/sequence/340",
      "@type":"sc:Sequence",
      "label":"default sequence",
      "viewingHint":"individuals",
      "canvases":[
        {
          "images":[
            {
              "resource":{
                "@type":"dctypes:Image",
                "service":{

"profile":"http://library.stanford.edu/iiif/image-api/1.1/conformance.html#level1",

"@id":"https://images.britishart.yale.edu/iiif/9f850fdb-7d30-407b-bc7c-a4dea3af2d5e",
                  "@context":"http://iiif.io/api/image/1/context.json"
                },
                "format":"image/jpeg",
                "width":6228,

"@id":"https://images.britishart.yale.edu/iiif/9f850fdb-7d30-407b-bc7c-a4dea3af2d5e/fu
ll/full/0/native.jpg",
                "label":"cropped to image, recto, unframed",
```

```
                    "height":4422
                },
                "@type":"oa:Annotation",
                "motivation":"sc:painting",

"@id":"https://manifests.britishart.yale.edu/annotation/ba-obj-340-0003-pub",
                "on":"https://manifests.britishart.yale.edu/canvas/ba-obj-340-0003-pub"
              }
            ],
            "@type":"sc:Canvas",
            "width":6228,
            "@id":"https://manifests.britishart.yale.edu/canvas/ba-obj-340-0003-pub",
            "label":"cropped to image, recto, unframed",
            "height":4422
          }
        ]
      }
    ]
}
```

Metadata Mapping for Indianapolis Museum of Art

These tables suggest a mapping between metadata exposed in the current IMA collections website and elements in a IIIF manifest. Like the example manifest, this mapping uses the IMA's [Hauptmann Must Die](#) as its starting point.

Manifest-level Elements

Element	Value
`@id`	*URI for the manifest, e.g.* `"https://iiif.imamuseum.org/33139/manifest.json"`
`@type`	`"sc:Manifest"`
`@context`	`"http://iiif.io/api/presentation/2/context.json"`
`label`	"Reginald Marsh (American, 1898-1954), Hauptmann Must Die, 1935, Egg tempera on Masonite, Indianapolis Museum of Art"
`description`	"Marsh was one of the foremost Social Realists of the 1930s, portraying scenes of New York urban life. He employed a graphic, linear technique to bring individuality to the characters he depicted.\n\nThe newspaper headline refers to the sentencing of the convicted kidnapper of Charles Lindbergh's baby.\n\nMarsh combined contemporary subjects with the use of media (such as egg tempera) and techniques derived from his study of European Old Master painters.","
`attribution`	"Image courtesy of the Indianapolis Museum of Art."
`logo`	"http://www.imamuseum.org/sites/default/themes/ima_main/images/ima-logo-horz-retina.png"

`related`	*The* `related` *element should include a link to the object record page on DMA's website:*
	`{`
	`    "@id":"http://collection.imamuseum.org/artwork/33139/",`
	`    "label":"Catalog entry at Indianapolis Museum of Art",`
	`    "format":"text/html"`
	`},`
	
	It may also include links to essays about the object, however these do not currently live within a unique URL on the IMA collections site, so additional work may be needed to expose them.
	`{`
	
	`"@id":"http://collection.imamuseum.org/artwork/33139/relatedtxt",`

| | ```
    "label":"More about the artist and the artwork at
Indianapolis Museum of Art",
    "format":"text/html"
}
``` |
| metadata | *See table below* |

Metadata Block

Label	Value
Title	Hauptmann Must Die
Artist	Reginald Marsh (American, 1898-1954)
Created	1935
Materials	Tempera on panel
Dimensions	27-3/4 x 35-3/4 in. 34 x 42 in. (framed)
Copyright	© Reginald Marsh/Artists Rights Society (ARS)
Credit Line	Bequest of Felicia Meyer Marsh
Provenance	The artist; the widow of the artist; left to the museum by bequest.

Sequence-level Elements

Element	Value
@type	"sc:Sequence"
label	"default sequence"
viewingHint	"individuals"
canvases	*All images for the object should be listed here, with the primary image appearing first.*

Sample Manifest for Indianapolis Museum of Art

This is a suggested item-level manifest for [Hauptmann Must Die](#) at a proposed IIIF presentation endpoint at Indianapolis Museum of Art. Note that the canvas in the default sequence does not depict the artwork, but rather includes a different painting so that it can be tested in IIIF clients.

```
{
  "@type":"sc:Manifest",
  "@context":"http://iiif.io/api/presentation/2/context.json",
  "@id":"http://collection.imamuseum.org/artwork/33139/manifest.json",
  "label":"Reginald Marsh (American, 1898-1954), Hauptmann Must Die, 1935, Egg tempera
on Masonite, Indianapolis Museum of Art",
  "description":"Marsh was one of the foremost Social Realists of the 1930s,
portraying scenes of New York urban life. He employed a graphic, linear technique to
bring individuality to the characters he depicted.\n\nThe newspaper headline refers to
the sentencing of the convicted kidnapper of Charles Lindbergh's baby.\n\nMarsh
combined contemporary subjects with the use of media (such as egg tempera) and
techniques derived from his study of European Old Master painters.",
  "attribution":"Image courtesy of the Indianapolis Museum of Art.",
  "metadata":[
    {
      "label":"Title",
      "value":"Hauptmann Must Die"
    },
    {
      "label":"Artist",
      "value":"Reginald Marsh (American, 1898-1954)"
    },
    {
      "label":"Created",
      "value":"1935"
    },
    {
      "label":"Materials",
      "value":"Tempera on panel"
    },
    {
      "label":"Dimensions",
      "value":"27-3/4 x 35-3/4 in.\n34 x 42 in. (framed) "
    },
    {
      "label":"Credit line",
      "value":"Bequest of Felicia Meyer Marsh"
    },
    {
      "label":"Copyright",
      "value":"© Reginald Marsh/Artists Rights Society (ARS)"
    },
    {
```

```
        "label":"Provenance",
        "value":"The artist; the widow of the artist; left to the museum by bequest."
      }
    ],

"logo":"http://www.imamuseum.org/sites/default/themes/ima_main/images/ima-logo-horz-re
tina.png",
    "related":[
      {
        "@id":"http://collection.imamuseum.org/artwork/33139/",
        "label":"Catalog entry at Indianapolis Museum of Art",
        "format":"text/html"
      },
      {
        "@id":"http://collection.imamuseum.org/artwork/33139/relatedtxt",
        "label":"More about the artist and the artwork at Indianapolis Museum of Art",
        "format":"text/html"
      }
    ],
    "sequences":[
      {
        "@id":"https://manifests.britishart.yale.edu/sequence/340",
        "@type":"sc:Sequence",
        "label":"default sequence",
        "viewingHint":"individuals",
        "canvases":[
          {
            "images":[
              {
                "resource":{
                  "@type":"dctypes:Image",
                  "service":{

"profile":"http://library.stanford.edu/iiif/image-api/1.1/conformance.html#level1",

"@id":"https://images.britishart.yale.edu/iiif/9f850fdb-7d30-407b-bc7c-a4dea3af2d5e",
                    "@context":"http://iiif.io/api/image/1/context.json"
                  },
                  "format":"image/jpeg",
                  "width":6228,

"@id":"https://images.britishart.yale.edu/iiif/9f850fdb-7d30-407b-bc7c-a4dea3af2d5e/fu
ll/full/0/native.jpg",
                  "label":"cropped to image, recto, unframed",
                  "height":4422
                },
                "@type":"oa:Annotation",
                "motivation":"sc:painting",

"@id":"https://manifests.britishart.yale.edu/annotation/ba-obj-340-0003-pub",
```

```
            "on":"https://manifests.britishart.yale.edu/canvas/ba-obj-340-0003-pub"
          }
        ],
        "@type":"sc:Canvas",
        "width":6228,
        "@id":"https://manifests.britishart.yale.edu/canvas/ba-obj-340-0003-pub",
        "label":"cropped to image, recto, unframed",
        "height":4422
      }
    ]
  }
 ]
}
```