

Import IIIF Manifest

Paste the URL to a IIIF Presentation Manifest. The following links will not work:

viewer pages – e.g. pages that embed Mirador or Universal Viewer.

links to image files – jpg, png, etc.

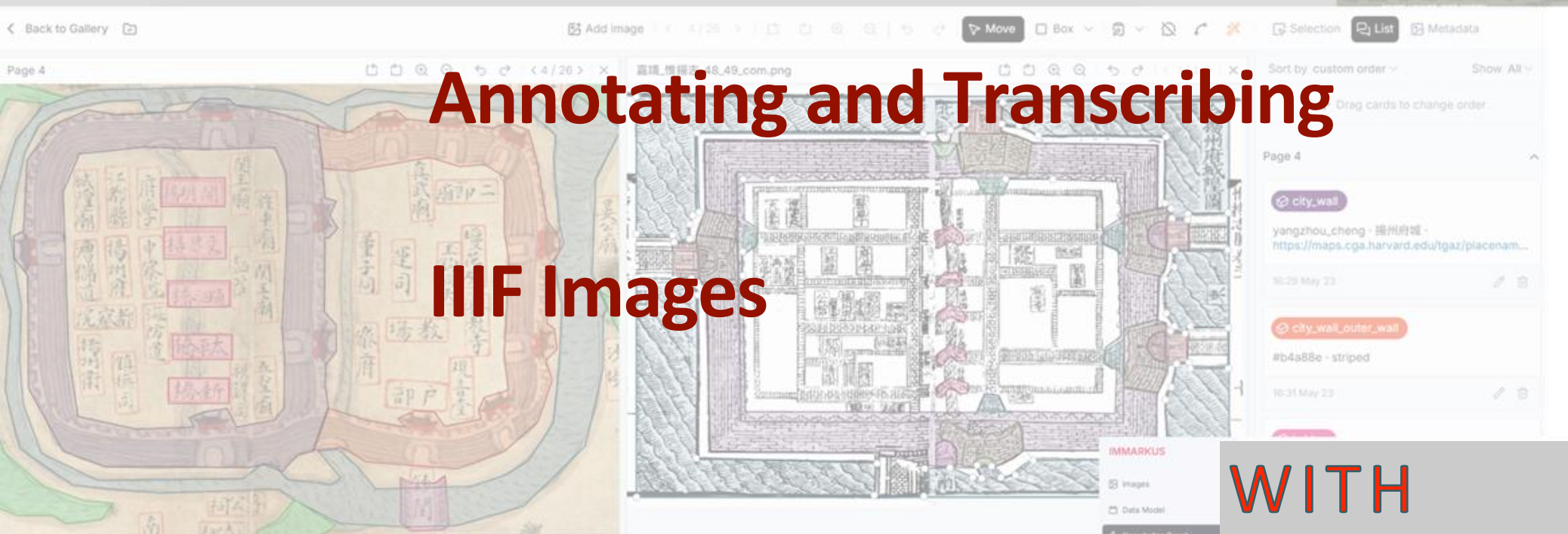
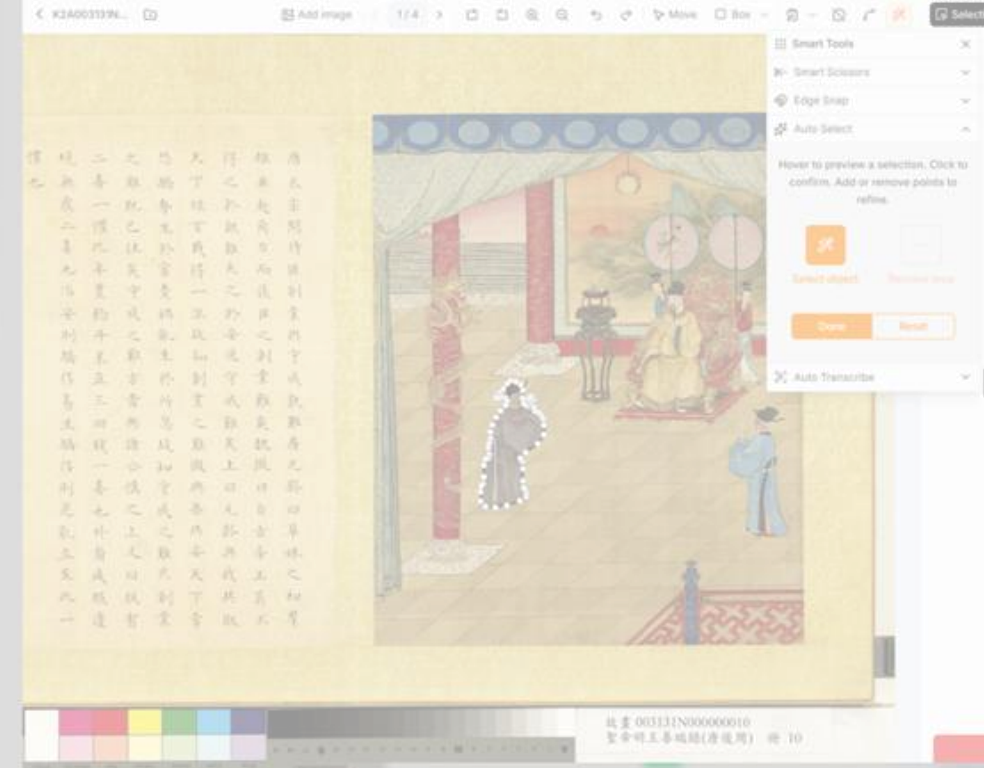
IIIF Image API endpoints – ending with info.json.

https://purl.stanford.edu/xt257vq9249/iiif/manifest

(Xin hui) Sichuan quan sheng ming xi yu tu -- (新繪)四川全省明細圖

Cancel

Import



Use Properties to record specific details in your annotations, such as weight, material, age, etc.

Property Name

Data Type

As Text

# Number

Options

Number Range

URI

Geo-coordinates

Measurement

Color

External Authority

Data Model

Entity Classes

Relationships

Image Metadata

Folder Metadata

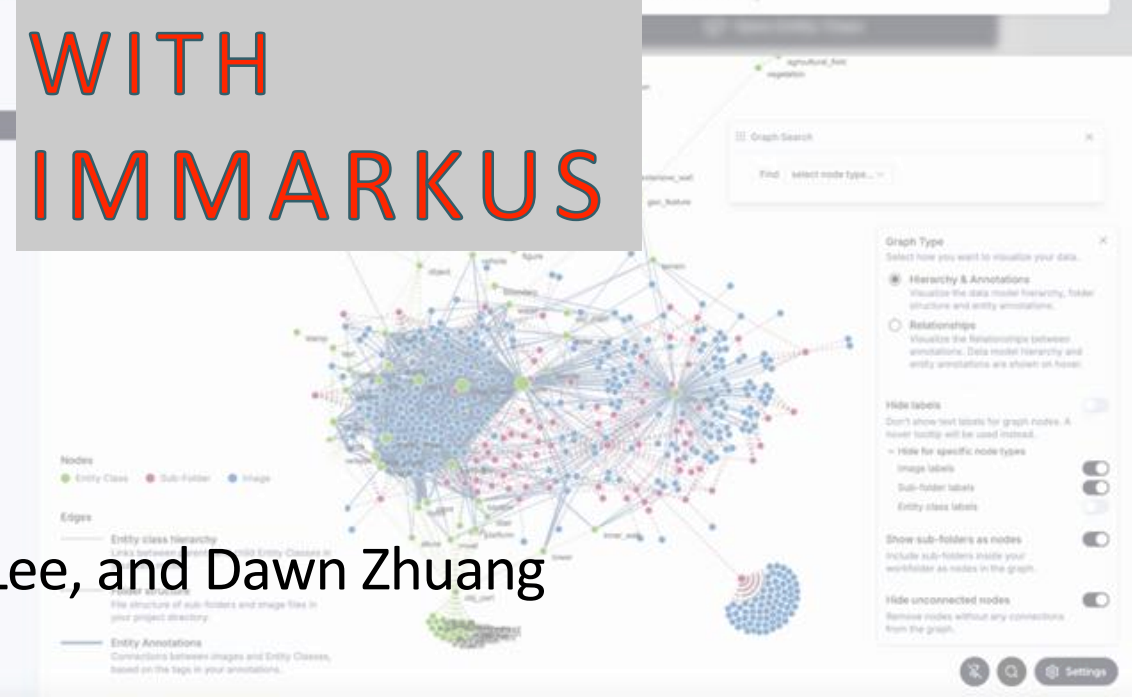
Use Entity Classes to annotate specific concepts or things with your annotations, and record details like the the material of an item, or the number of legs on an animal.

Entity Class	Display Name	Description	Properties
stl_part			<div>Address</div> <div>As location</div>
object			<div>As</div> <div>As name</div> <div>As material</div> <div>+</div>
city_wall		A fortified structure surrounding the center of a civilian administrative unit ...	<div>As location</div> <div>As material</div> <div>As name</div>
bridge		A structure designed to cross a physical obstacle, such as a river.	<div>As location</div> <div>As material</div> <div>As name</div> <div>+</div>
landform		Any named or unnamed land features such as hills, mountains, and valleys, etc.	<div>As</div> <div>As name</div> <div>As material</div> <div>+</div>
water		Any named or unnamed water features such as rivers, lakes, and ocean, etc.	<div>As</div> <div>As name</div> <div>As material</div> <div>+</div>

Create New Entity Class

Import Model

WITH  
IMMARKUS



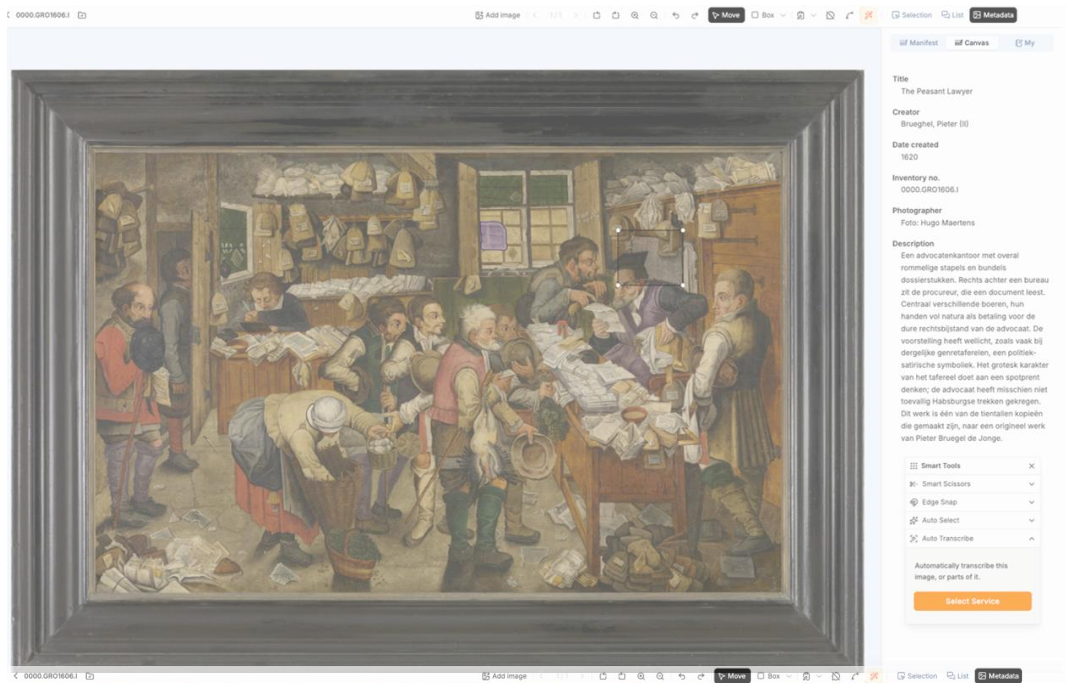
Hilde De Weerd, Rainer Simon, Sunkyu Lee, and Dawn Zhuang





<https://www.infrastructurelives.eu/>

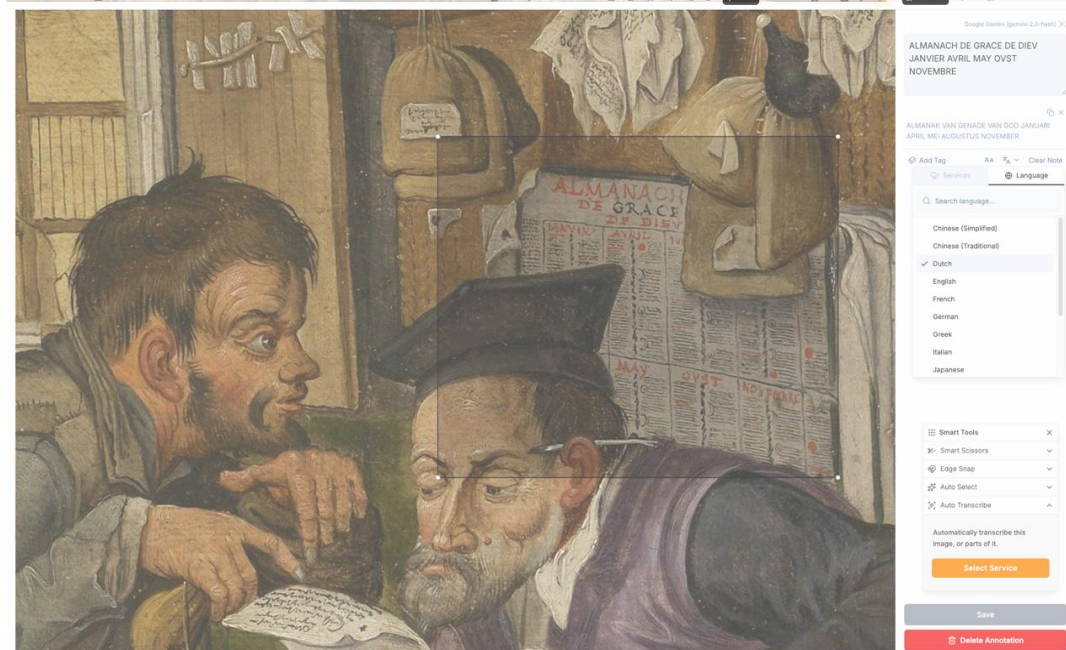




# 1. Collecting Images (How and which IIIF manifests can I import?)



## 2. Annotating Images (what methods and AI models can I use for annotating image regions)



and for transcribing text in images?)



IMMARKUS

Images

Data Model

Knowledge Graph

Export

X-MARKUS

About

Help

Data Model

Entity Classes

Relationships

Image Metadata

Folder Metadata

Use Entity Classes to annotate specific concepts or things with your annotations, and record details like the the material of an item, or the number of legs on an animal.

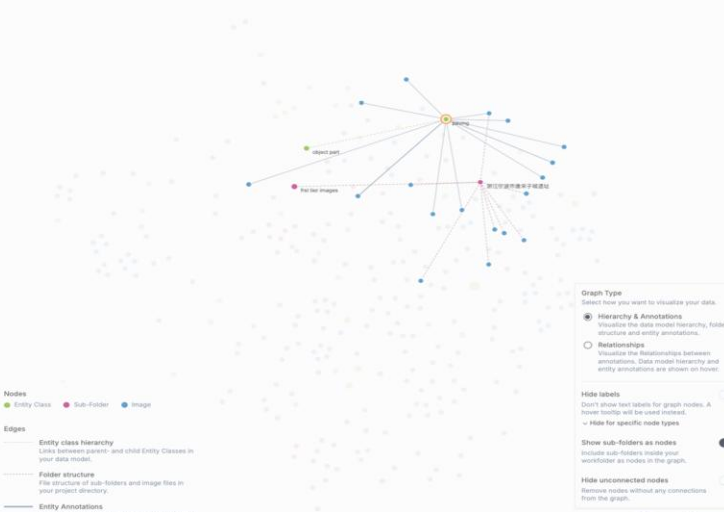
Entity Class	Display Name	Description
location_site	site	Excavated/surveyed area
excavation	excavation	
survey area	survey	
obj_main	main object	
grave	grave	

Create New Entity Class

Import Model

Knowledge Graph

Explore connections between images and entities. Zoom and pan the graph with your mouse. Grab and pull a node to re-arrange the graph. Click a node to see more information.



Graph Type

Hierarchy & Annotations

Visualize the data model Hierarchy, folder structure and entity annotations.

Relationships

Visualize the Relationships between annotations, Data model Hierarchy and entity annotations are shown on hover.

Hide labels

Don't show text labels for graph nodes. A hover tooltip will be used instead.

Hide for specific node types

Show sub-folders as nodes

Include sub-folders inside your workfolder as nodes in the graph.

Hide unconnected nodes

Remove nodes without any connections from the graph.

Nodes

Entity Class

Sub-Folder

Image

Edges

Entity class Hierarchy

Links between parent- and child Entity Classes in your data model.

Folder structure

File structure of sub-folders and image files in your project directory.

Entity Annotations








Connections between images and Entity Classes, based on tags in your annotations.

Exit

Settings

AI

Snippet

1332		塔池_高平镇志_69.jpg 69503910-1903-4065-8e69-418e75dc406	2024-03-06T14:26:38.201Z	side_tower													south	4
1333		塔池_高平镇志_69.jpg 9097158-2d62-4197-8d35-4bd375289785	2024-03-06T14:26:52.744Z	side_tower													west	1
1334		塔池_高平镇志_69.jpg 0193ac04-29f0-4525-8c0b-6427664e7b0d	2024-03-06T14:27:03.920Z	side_tower													west	2
1335		塔池_高平镇志_69.jpg f68f6ba-ca4b-4b3a-bc5c-c1ba74d77b85	2024-03-06T14:27:16.178Z	side_tower													west	3
1336		塔池_高平镇志_69.jpg 08b5bbaf-852d-4707-b2b9-8438b756bda	2024-03-06T14:27:26.442Z	side_tower													west	4
1337		塔池_高平镇志_69.jpg e0326d04-a2ef-4d51-bc62-b765a002b83	2024-03-06T14:27:43.678Z	gate_tower													west	
1338		塔池_高平镇志_69.jpg 3b296a81-207b-4037-b264-ecd1950470de	2024-03-06T14:27:53.754Z	side_tower													west	5
1339		塔池_高平镇志_69.jpg 5993651a-1306-4758-876c-2876798c540	2024-03-06T14:28:08.114Z	side_tower													west	6
1340																		
1341																		

object

obj\_part

geo\_features

figma

text

### 3. What is a data model? (should I use data models; how?)

### 4. Visualising annotations (what is knowledge graph and how do I use it for exploring annotation data?)

### 5. Exporting annotations and models (what other kinds of analysis can I do with image annotations?)



# Timeline

---

- 4:00-4:40** Introduction
  - Collecting (IIIF) Images
  - Annotating Images
  - Transcribing Text from Images
- 4:40-5:00** Questions and Break
- 5:00-5:40** Annotation Data Models
  - Metadata Models
  - Visualising and Querying Annotations in Knowledge Graph
  - Exporting Annotations
- 5:40-6:00** Discussion and Questions



# IMMARKUS

IMMARKUS interface showing a gallery of historical Chinese maps and a detailed metadata panel for a selected map.

**Gallery:**

- sanzhentushuo\_datongche (1/1)
- taiyuanzhigar (6/8)
- shanxidatong (3/7)
- Two smaller maps (2/2 and 1/2)

**Metadata Panel (Selected Map: shanxidatong):**

- gate:** [icon]
- id:** datong\_southern\_pass
- name:** southern\_pass
- location:** datong
- TGAZ:** hvd\_115139
- descriptor:** 南至懷仁縣七十里
- color:** [empty field]
- pattern:** plain

Hilde De Weerd, Rainer Simon, Lee Sunkyu, Iva Stojević, Dawn Zhuang, Meret Meister, and Xi Wangzhi. IMMARKUS: Image Annotation in X-MARKUS. 2024-. [immarkus.xmarkus.org](https://immarkus.xmarkus.org)



## 05 Annotating Images

fonziedw edited this page 4 days ago · [105 revisions](#)

To add annotations to your images, click the subfolder containing the images you want to work with in the image gallery. This will open the images in the folder, and you can start annotating.

### Overview

The following functionalities are available in the annotation mode (numbers correspond to those in **Figure 1**)

1. [Add an image](#)
2. Browse the images in the same subfolder / click arrows to display the previous or next image
3. Rotate image 90° to the left or to the right
4. Zoom in or zoom out of an image
5. Undo/redo
6. Move (pan) across the image
7. [Draw a shape](#) (select box, polygon, ellipse, or path)
8. Copy image snippet (exact shape or bounding box) to clipboard
9. Hide annotations
10. Add relation between two entities
11. Smart tools for selecting irregular shapes or automatically transcribing an image (or parts of it) with AI models
12. See details of the currently selected annotation
13. List your annotations
14. Add or edit [individual image metadata](#)

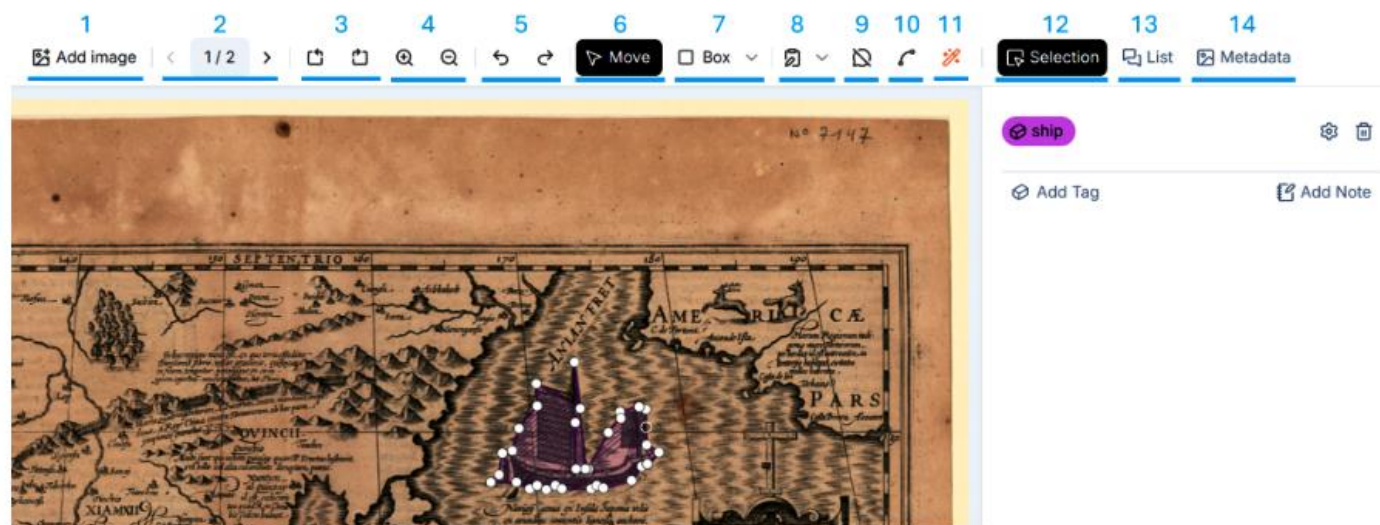


Figure 1. Workspace in Annotation Mode

Pages 11

Find a page...

- Home
- 01 Overview
- 02 Importing Images
- 03 The Interface
- 04 Designing a Data Model
- 05 Annotating Images
- 06 Working with Metadata
- 07 Exploring Data in Knowledge Gr...
- 08 Exporting Data
- Recommended IIIF Image Sources
- Troubleshooting IIIF Manifest Impo...

Clone this wiki locally

<https://github.com/rsimon/immarku>

Hilde De Weerd, Rainer Simon, Dawn Zhuang, Lee Sunkyu, and Iva Stojević. Image Annotation in IMMARKUS Wiki. 2024-. [github.com/rsimon/immarkus/wiki](https://github.com/rsimon/immarkus/wiki)



## Recommended reading:

- De Weerdt Hilde. “Creating, Linking, and Analyzing Chinese and Korean Datasets: Digital Text Annotation in MARKUS and COMPARATIVUS,” *Journal of Chinese History* 4.2 (2020): 519-527. <https://doi.org/10.1017/jch.2020.23>
- De Weerdt, Hilde, Brent Ho, Rainer Simon, Lee Sunkyu, Sander Molenaar, Xi Wangzhi, Dawn Zhuang, Iva Stojević, Tu Hsieh-Chang, Taylor Zaneri, Lin Nung-yao, and Meret Meister. “**Contextual Semantic Text and Image Annotation in the MARKUS Environment.**” *Digital Humanities Quarterly* 19.4 (2025). <https://dhq.digitalhumanities.org/vol/19/4/000808/000808.html>



# On Image Annotation: Uses

---

- to analyze “large” image corpora by user-defined properties, relations between properties, and metadata
- to allow for linking to external “authorities” (e.g., geo-referencing)
- to transcribe and translate text in images of manuscripts, paintings, printed books, maps, objects, graphs and diagrams, etc.
- to compare transcriptions and translations, edit, *and save them for later use*
- to link text and image sources of different kinds and use them jointly in historical analysis and interpretation
- other uses: create training data for text and image recognition, etc.
- creative uses: logs with images and snippets



# 1. Collecting (IIIF) Images

## Manuscript Maps

Images | Metadata | Import IIIF | Add Collections



Shan shui tu (Landscape with a River and Mountains)  
1000 - 1200



Shan shui tu (Landscape with a River and Mountains)  
1000 - 1200



Shan shui tu (Landscape with a River and Mountains)  
1000 - 1200



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- links to image files – jpg, png, etc.
- IIIF Image API endpoints – ending with `info.json`.

<https://purl.stanford.edu/xt257vq9249/iiif/manifest>

✓ (Xin hui) Sichuan quan sheng ming xi yu tu -- (新繪)四川全省明細輿圖

Cancel



Import

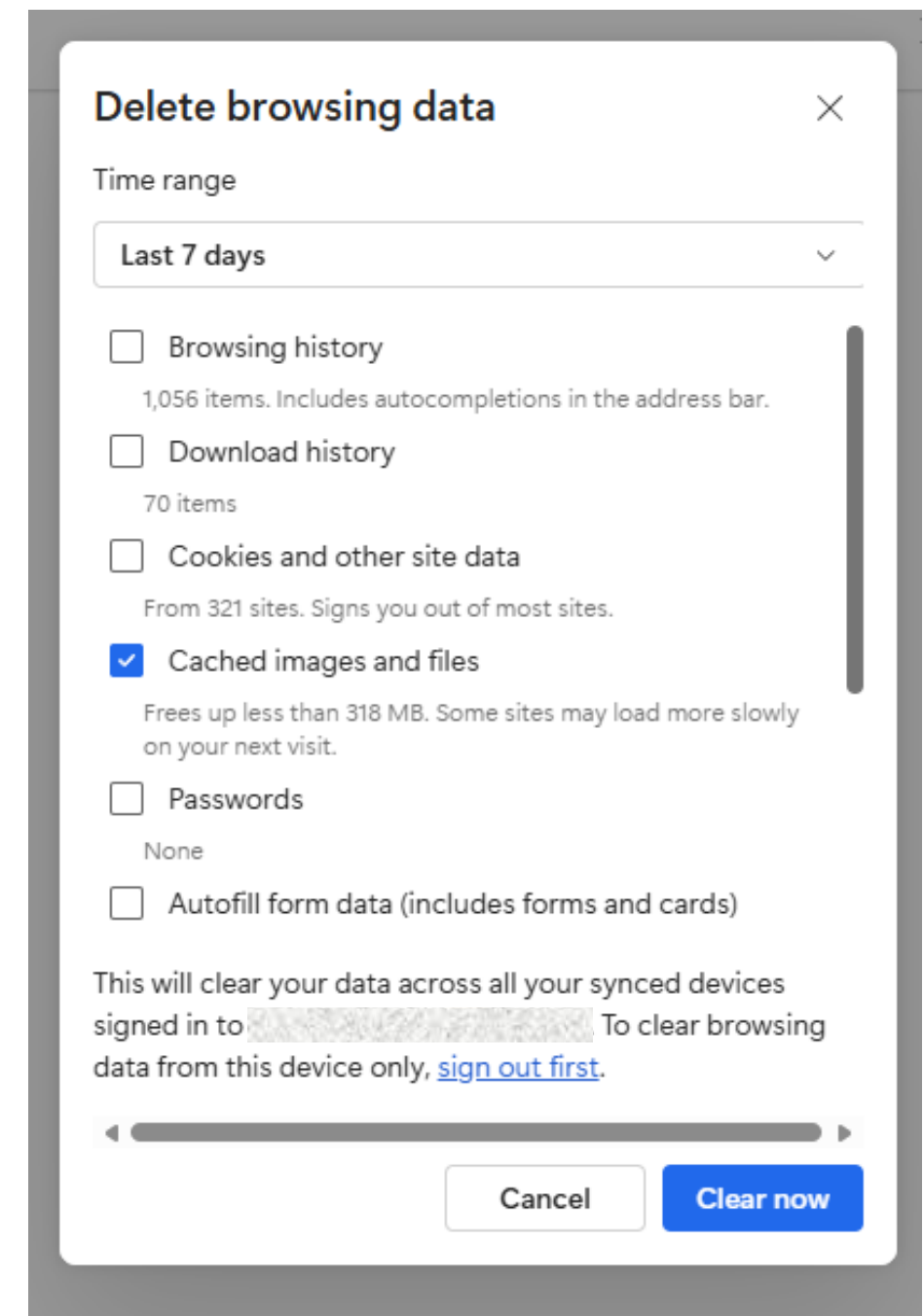


# Before We Start

---

1. Open your browser and clear your browser cache

- On **Chrome** : Go to **⋮ > Settings > Privacy and security > Delete browsing data** → Select **Cached images and files** > Click **Delete data** , then restart the browser
- On **Edge** : Go to **⋯ > Settings > Privacy and security > Clear browsing data** → Select **Cached images and files** > Click **Clear now**, then restart the browser

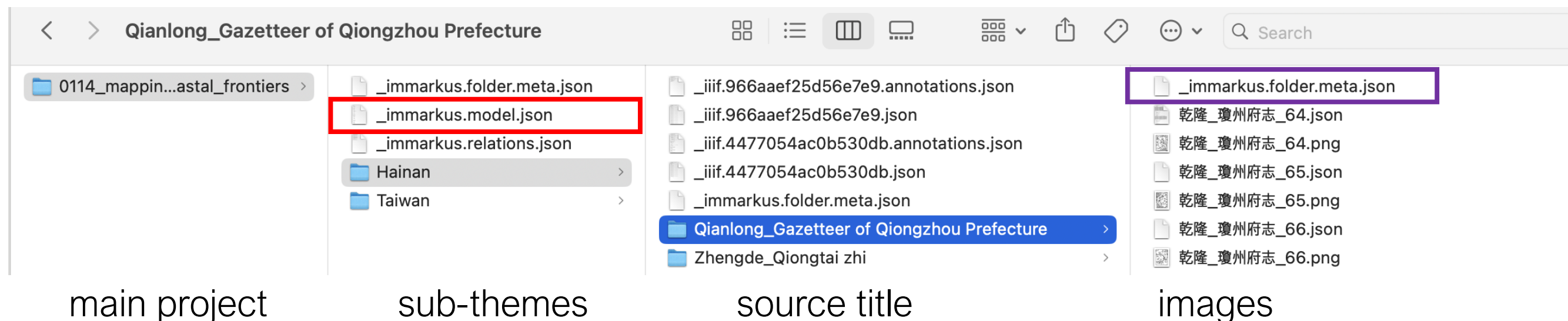




# Before We Start

## 2. Prepare a **folder** on your computer

- Create an **(empty) folder** even if you plan to use only IIIF images
- This folder may also contain **locally saved image files (.jpeg or .png)** if you use both IIIF and local images
- In case you use locally saved images, you may organize images into **one or more subfolders** based on shared features (e.g. same publication)

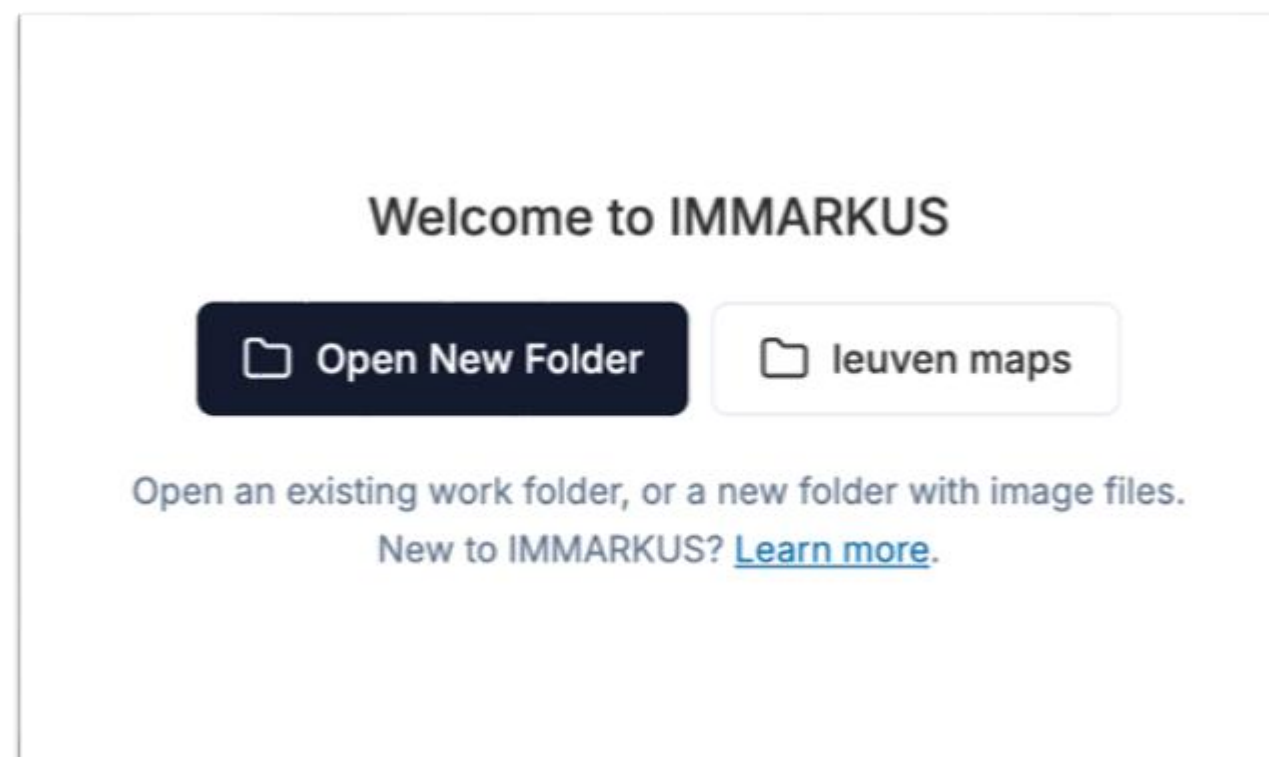




# Importing a Folder

---

1. Go to **IMMARKUS** [immarkus.xmarkus.org](https://immarkus.xmarkus.org)
  - Use **Chrome** or **Edge**
2. Click **Open New Folder** and select your image folder
3. Click **Edit Files** to allow IMMARKUS to edit the files





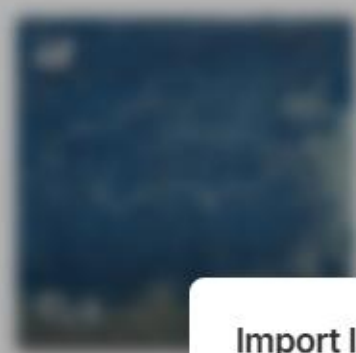
# Importing IIIF URLs

## Manuscript Maps

Images | Metadata | Import IIIF | Add Collections



Shan shui tu (Landscape with a River and Mountains)  
1000 - 1200



Shan shui tu (Landscape with a River and Mountains)  
1000 - 1200



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<https://purl.stanford.edu/xt257vq9249/iiif/manifest>

✓ (Xin hui) Sichuan quan sheng ming xi yu tu -- (新繪)四川全省明細輿圖

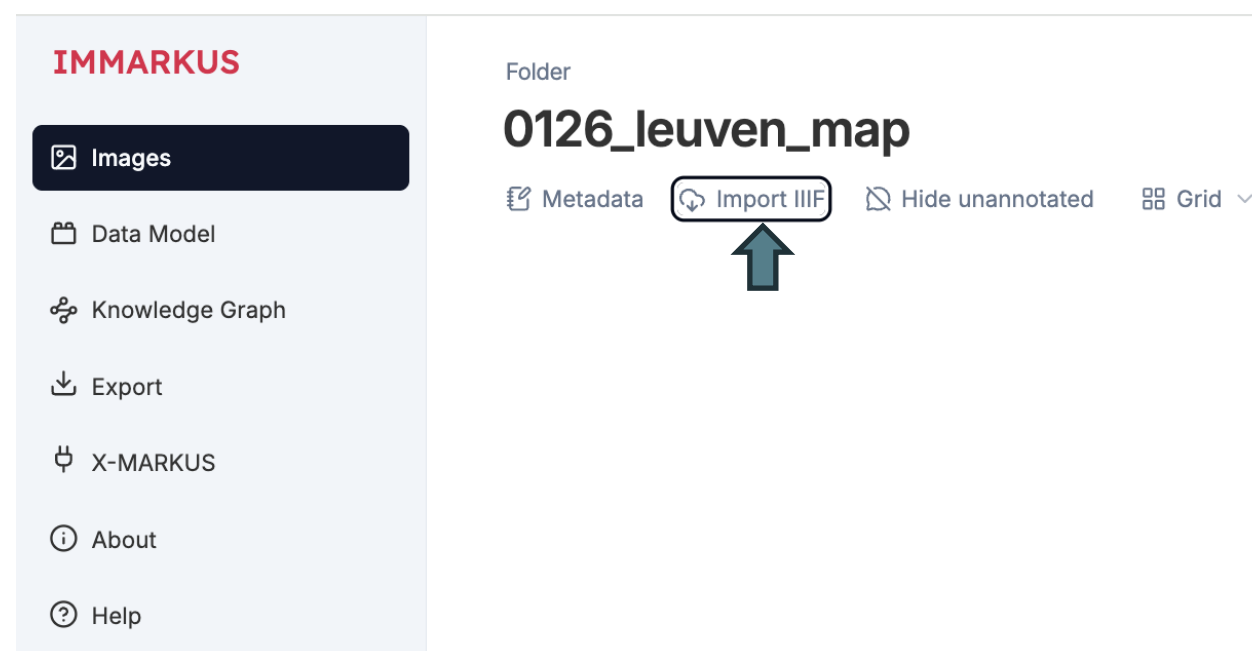
Cancel

Import



# Importing IIIF URLs

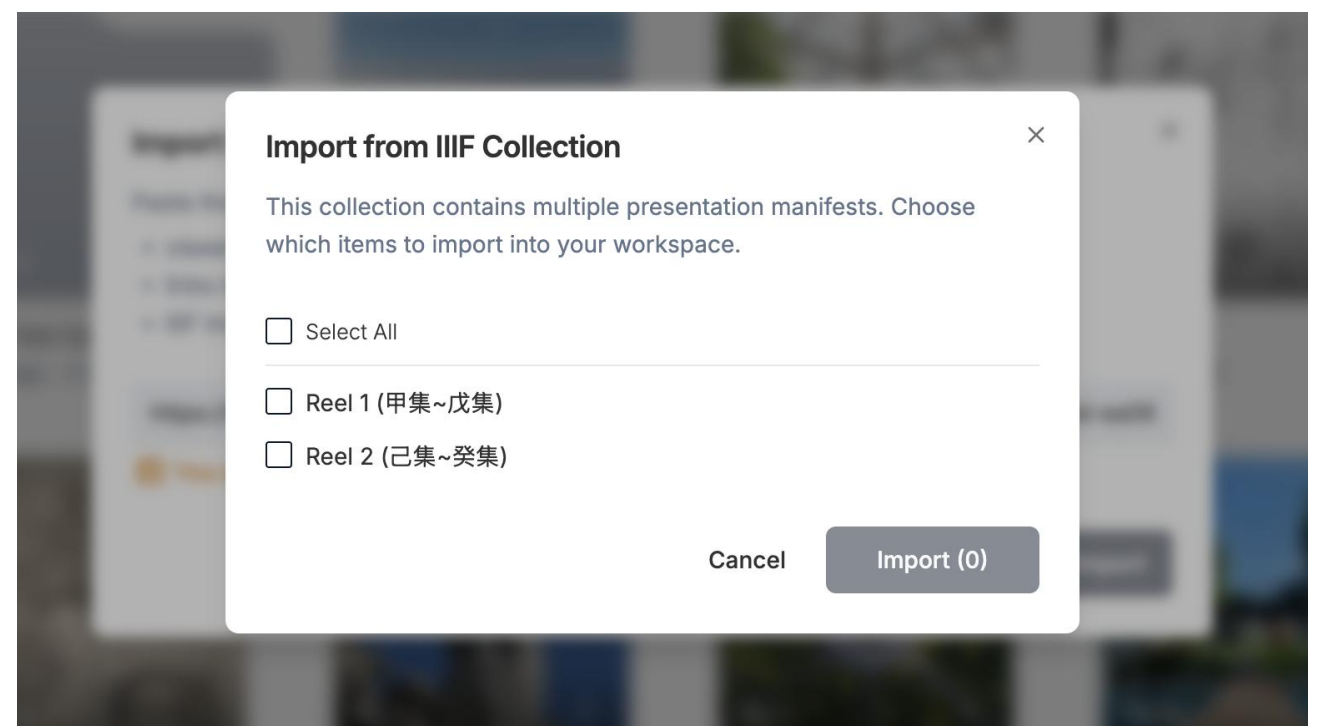
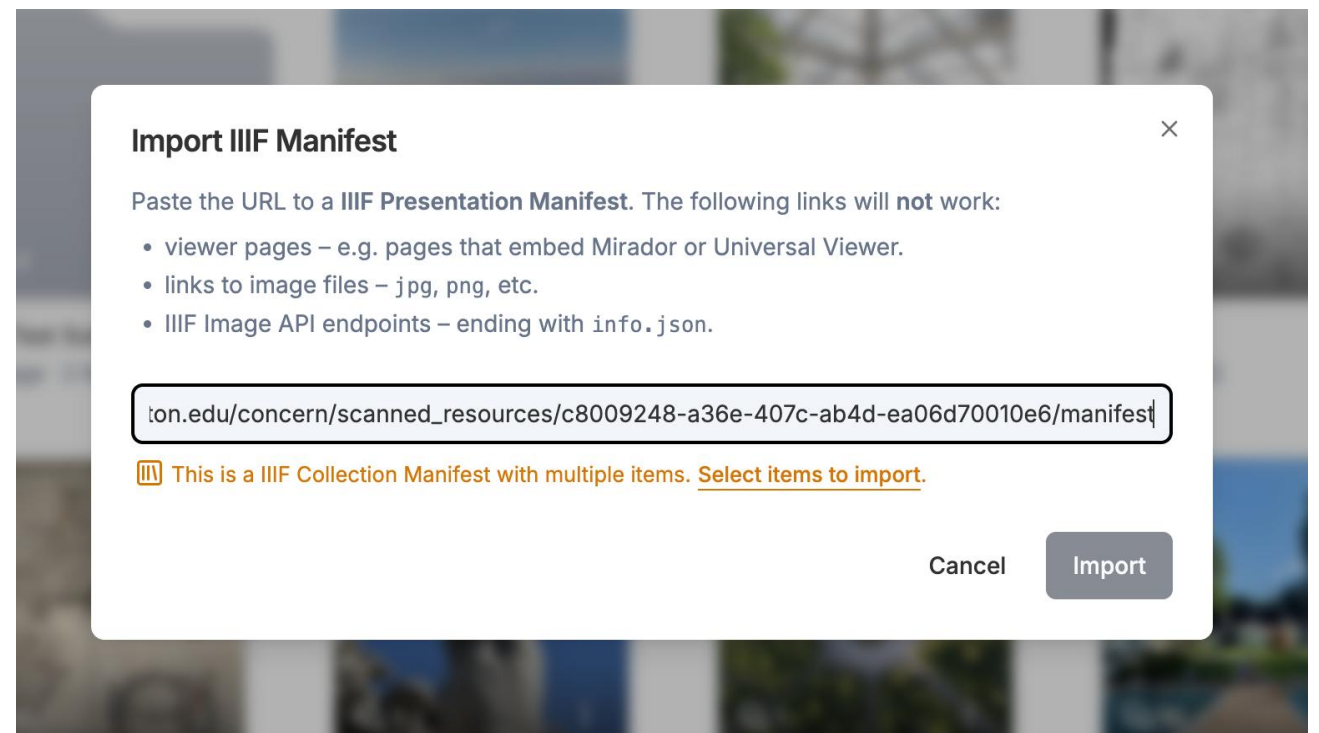
1. Click **Import IIIF**
2. Paste the URL to the dialogue box
3. Click **Import**





# Supported Manifest Types

1. Presentation API 2 & 3
2. Collection manifests
3. Full support for simple image and Level 0 (!)
4. But **NOT** Image API directly (info.json URLs)



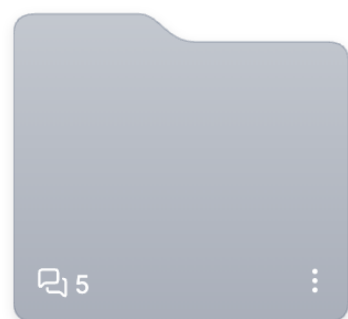


# Importing IIIF URLs

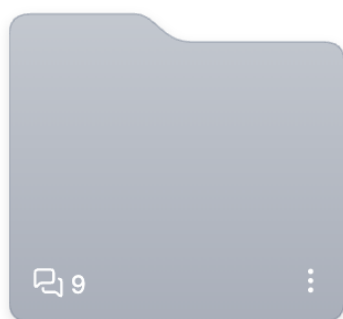
0114\_mapping\_coastal\_frontiers >

## Taiwan

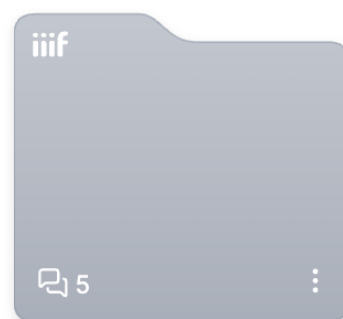
 Metadata  Import IIIF  Hide unannotated  Grid 



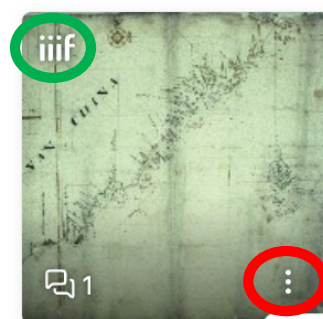
Carte de ce qui appartient...  
1 IIIF







Taiwan qianhou shantu\_LOC  
1 IIIF



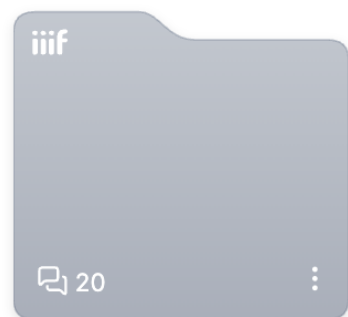
Bodleian Library MS.Selde...  
11 Canvases



Bodleian Library Film...  
1,818 x 1,228

-  Metadata >
-  Open Canvas
-  Other IIIF Viewers >
-  Delete

-  Manifest Metadata
-  Canvas Metadata



BnF, département Cartes ...  
3 Canvases

{ } IIIF

 My



### Homepage

[View on Digital Bodleian](#)

### Title

[Formosa Strait by Anon. Dutch, early 18th century]

### Shelfmark

Bodleian Library Filmstrip Roll 235.5, frame 17

### Language

Dutch

### Date Statement

early 18th century

### Description

Portolan chart joining three places of interest to the Dutch: Canton, Taiwan, and Amoy

### Extent

1015 x 710 mm

### Extent

35mm slide

### Collection

Maps and Atlases



# Importing IIIF URLs

## IMMARKUS

### Images

Data Model

Knowledge Graph

Export

X-MARKUS

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Help

Exit

practice >  Andreæ Vesalii Brvxellens...

## Table of Contents

 Metadata ·  Other IIIF Viewers ·  Hide unannotated ·  Grid



Binding



Title



Ad divvm Carolvm Qvintvm  
... Andreæ Vesalii ... Præfatio



Ioanni Oporino ... amico  
chariBimo suo



Liber primvs, iis qvæ  
vniversvm corpvs sustinent  
ac suffulciunt, quibusq;  
omnia stabiliuntur &  
adnascuntur, dedicatus [The  
bones and cartilages]



Liber secvndvs, ligamentis  
ossa cartilaginesq; inuicem  
committentibus, & musculis  
uoluntariorum motuum  
instrumentis, dedicatus ...  
[The ligaments and muscles]



Liber tertivs, qvo venarvm  
arteriarvmqve per  
uniuersum corpus series  
describitur ... [The veins and  
arteries]



Liber qvartvs, nervis  
proprivs, ac ipsi peculiares  
figuras in caput, quibus  
præcipuè conueniunt, fronte  
exhibens [The nerves]



Liber qvintvs, organis  
nvtritioni qvæ cibo potuq;  
sit, & dein propter partium  
connexum ac uiciniam  
instrumentis generationi  
famulantibus dedicatus ...  
[The organs of nutrition and]



Liber sextvs, cordi ipsi'qve  
famvlantibvs organis  
dedicatus ... [The heart and  
associated organs]



Liber septimvs, cerebro  
principis animalis'qve  
facultatum sedi, & sensuum  
organis dedicatus ... [The  
brain]

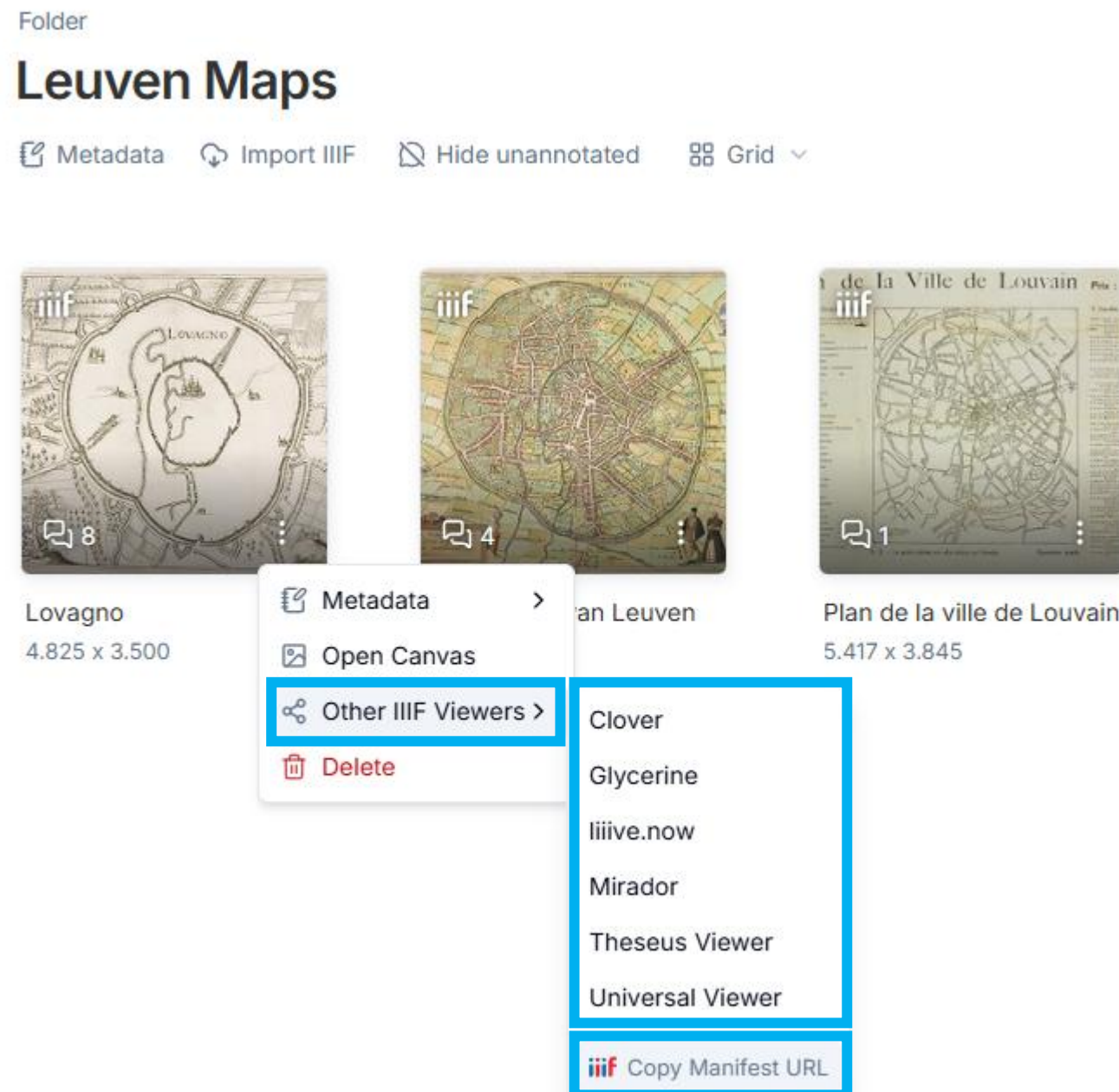


Binding



# Tip

You can also open an imported IIIF manifest in other viewers or copy its manifest URL to validate it and compare its rendering across platforms





# Practice 1: Importing IIIF URLs

- If you already have a IIIF URL you would like to work with, please copy and paste it into the chat so we can see what you plan to use (and troubleshoot if needed)
- If you do not yet have a IIIF URL, please visit **the digital collections of the Bodleian Libraries**, locate one or more IIIF resources, and import them into IMMARKUS

<https://digital.bodleian.ox.ac.uk/search/>

The screenshot displays the Digital Bodleian website interface. At the top, there is a navigation bar with the 'DIGITAL BODLEIAN' logo, 'SEARCH', 'BROWSE', and 'ABOUT' links, along with a 'Log in' button and the University of Oxford logo. A yellow banner below the navigation bar states: 'Technical issues are affecting Digital Bodleian. Images may be slow to load, and some features may not work as expected. We are working on a resolution.' The main search area features a search bar with the placeholder text 'Enter keywords', a search icon, and an 'ADVANCED SEARCH' button. Below the search bar, there is a sidebar on the left with a 'Save search' button and a list of 'Object Type' filters with their respective counts: Archives and Manuscripts (10422), Music (4267), Printed Books (2690), Portraits, Prints and Drawings (1973), Ephemera (994), Maps (828), Periodicals (417), Bindings (291), and Photographs (229). The main content area shows a grid of search results. The first result is 'All Souls College Hovenden I', which includes a thumbnail image of a map, the title 'The Hovenden Maps: All Souls College Estates: Volume I', the date range '1591-1604', the location 'England, Oxford', the authors 'Clerke, Thomas | Langdon, Thomas | +2', and a 'Fully digitized' status. The page also indicates '21,640 items' and provides options for '20 per page' and 'Sort by Relevance'.



- Find and Paste a IIIF URL: ending with **/manifest** or **/manifest.json**

The screenshot shows the Digital Bodleian website interface. At the top, the URL bar contains `digital.bodleian.ox.ac.uk/objects/acd9492e-25fa-4286-9fe6-e0cf2fc28106/`, which is highlighted with a red box and crossed out with a red 'X'. Below the header, a yellow banner states: "Technical issues are affecting Digital Bodleian. Images may be slow to load, and some features may not work as expected. We are working on a resolution." The main content area is titled "All Souls College Hovenden I" and displays a manuscript image of a map. On the left, a sidebar menu includes options: "View in Mirador for advanced features", "View in Universal Viewer", and "View IIIF manifest", which is highlighted with a green box. A large blue arrow points from this menu item to a second browser window at the bottom. This second window shows the URL `iiif.bodleian.ox.ac.uk/iiif/manifest/acd9492e-25fa-4286-9fe6-e0cf2fc28106.json` highlighted with a green box. To the right of the main image, there is a metadata panel with the following information:

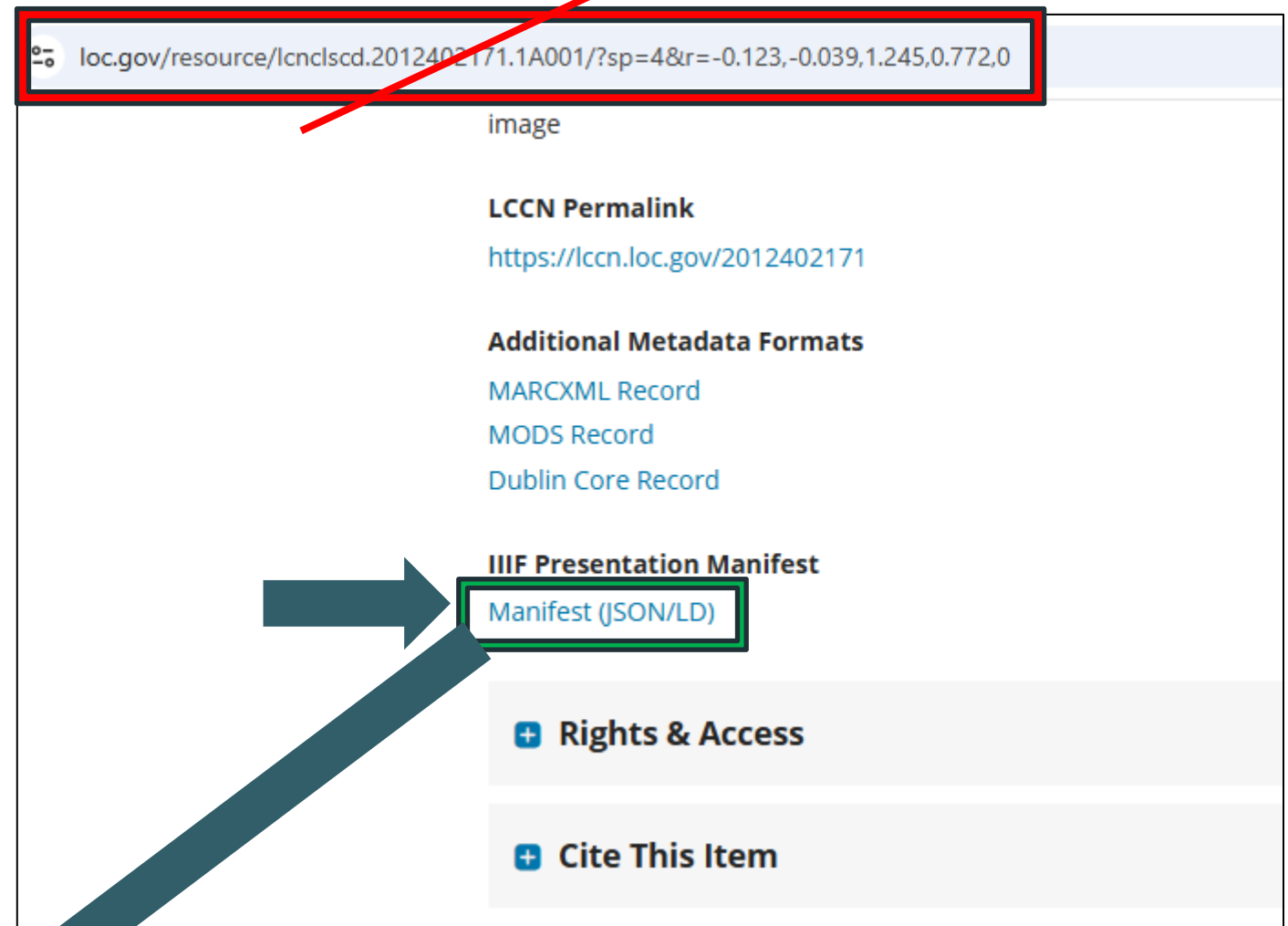
- The Hovenden Maps: All Souls College Estates: Volume I**
- Shelfmark:** All Souls College Hovenden I
- Holding Institution:** All Souls College, University of Oxford
- Related Resource:** [The Hovenden Maps - The Library, All Souls College](#)
- Date Statement:** 1591-1604

```
{"@context":"http://iiif.io/api/presentation/2/context.json","@id":"https://iiif.bodleian.ox.ac.uk/iiif/manifest/acd9492e-25fa-4286-9fe6-e0cf2fc28106.json","@type":"sc:Manifest","label":"All Souls College Hovenden I","description":"The Hovenden Maps: All Souls College Estates: Volume I","metadata":[{"label":"Homepage","value":"<span><a href='\"https://digital.bodleian.ox.ac.uk/objects/acd9492e-25fa-4286-9fe6-e0cf2fc28106/\">View on Digital Bodleian</a></span>\"},{\"label\":\"Related Resource\",\"value\":\"<a href='\"http://library.asc.ox.ac.uk/hovenden/\">The Hovenden Maps - The Library, All Souls College</a>\"},{\"label\":\"Title\",\"value\":\"The Hovenden Maps: All Souls College Estates: Volume I\"},{\"label\":\"Shelfmark\",\"value\":\"All Souls College Hovenden I\"},{\"label\":\"Cartographer\",\"value\":\"Clerke, Thomas\"},{\"label\":\"Cartographer\",\"value\":\"Langdon, Thomas\"},{\"label\":\"Patron\",\"value\":\"Hovenden, Robert\"},{\"label\":\"Patron\",\"value\":\"All Souls College, Oxford\"},{\"label\":\"Date Statement\",\"value\":\"1591-1604\"},{\"label\":\"Place of Origin\",\"value\":\"England, Oxford\"},{\"label\":\"Description\",\"value\":\"Estate maps of All Souls College, commissioned by
```



# Library of Congress

- IIIF manifests usually have in their URL structure: **/manifest** or **/manifest.json**
- Go to [IMMARKUS Wiki](https://immarkus.wiki) for more tips



loc.gov/resource/lcnclscd.2012402171.1A001/?sp=4&r=-0.123,-0.039,1.245,0.772,0

image

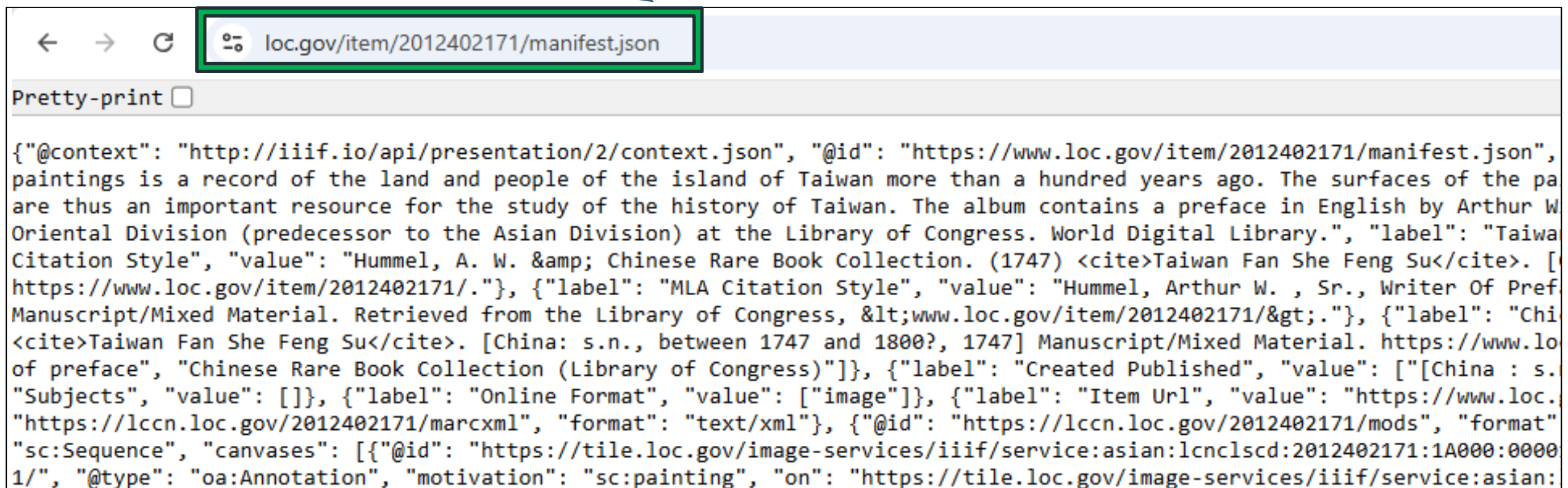
LCCN Permalink  
<https://lcn.loc.gov/2012402171>

Additional Metadata Formats  
[MARCXML Record](#)  
[MODS Record](#)  
[Dublin Core Record](#)

IIIF Presentation Manifest  
[Manifest \(JSON/LD\)](#)

+ Rights & Access

+ Cite This Item



← → ↻ [loc.gov/item/2012402171/manifest.json](https://loc.gov/item/2012402171/manifest.json)

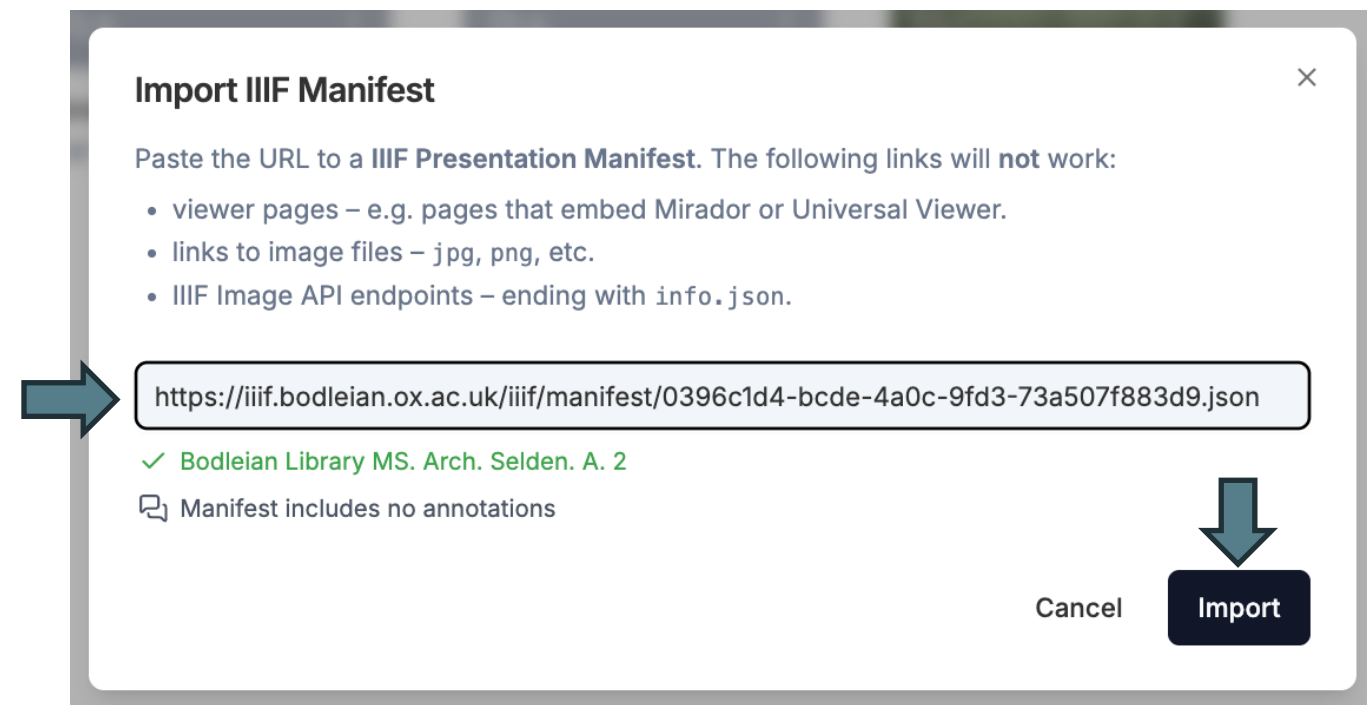
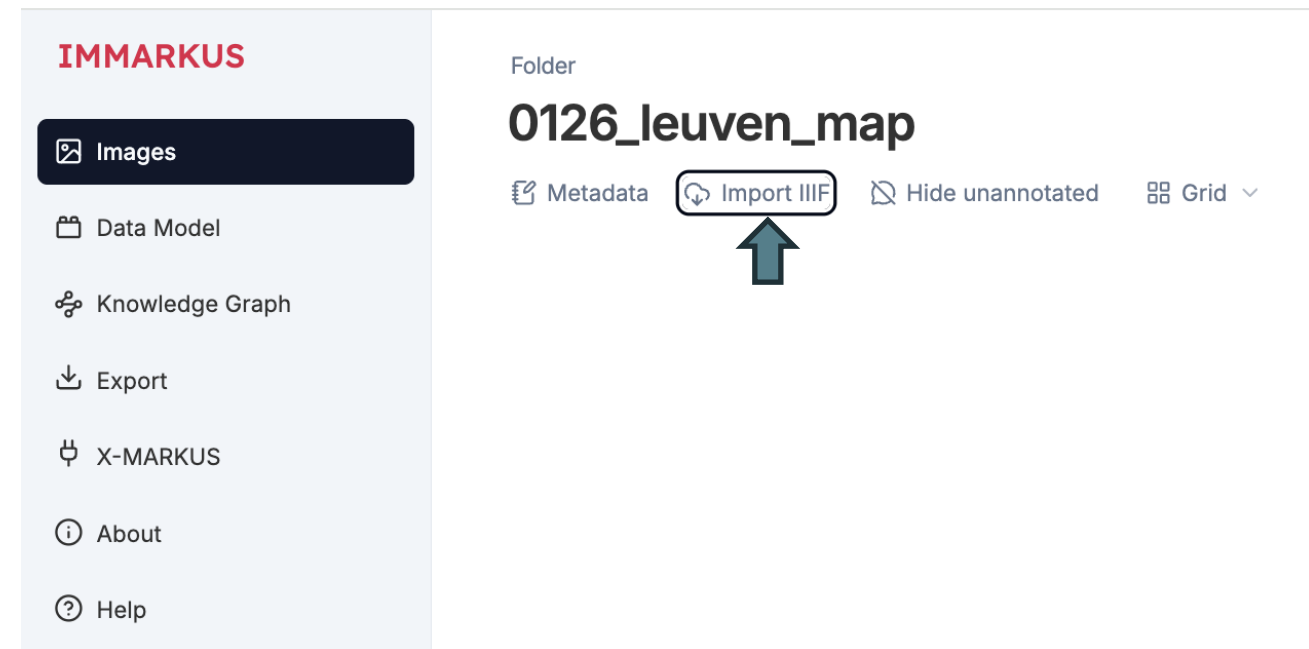
Pretty-print ☐

```
{ "@context": "http://iiif.io/api/presentation/2/context.json", "@id": "https://www.loc.gov/item/2012402171/manifest.json",
  "paintings is a record of the land and people of the island of Taiwan more than a hundred years ago. The surfaces of the pa
  are thus an important resource for the study of the history of Taiwan. The album contains a preface in English by Arthur W
  Oriental Division (predecessor to the Asian Division) at the Library of Congress. World Digital Library.", "label": "Taiwa
  Citation Style", "value": "Hummel, A. W. & Chinese Rare Book Collection. (1747) <cite>Taiwan Fan She Feng Su</cite>. [
  https://www.loc.gov/item/2012402171/.", {"label": "MLA Citation Style", "value": "Hummel, Arthur W. , Sr., Writer Of Pref
  Manuscript/Mixed Material. Retrieved from the Library of Congress, <www.loc.gov/item/2012402171/>."}, {"label": "Chi
  <cite>Taiwan Fan She Feng Su</cite>. [China: s.n., between 1747 and 1800?, 1747] Manuscript/Mixed Material. https://www.lo
  of preface", "Chinese Rare Book Collection (Library of Congress)"]}, {"label": "Created Published", "value": "[ "[China : s.
  "Subjects", "value": []}, {"label": "Online Format", "value": ["image"]}, {"label": "Item Url", "value": "https://www.loc.
  "https://lcn.loc.gov/2012402171/marcxml", "format": "text/xml"}, {"@id": "https://lcn.loc.gov/2012402171/mods", "format"
  "sc:Sequence", "canvases": [{"@id": "https://tile.loc.gov/image-services/iiif/service:asian:lcncldscd:2012402171:1A000:0000
  1/", "@type": "oa:Annotation", "motivation": "sc:painting", "on": "https://tile.loc.gov/image-services/iiif/service:asian:"
```



# Importing IIIF URLs

1. Click **Import IIIF**
2. Paste the URL into the dialogue box
3. Click **Import**










## 2. Annotating Images

Add image

< 4 / 26 >



Move

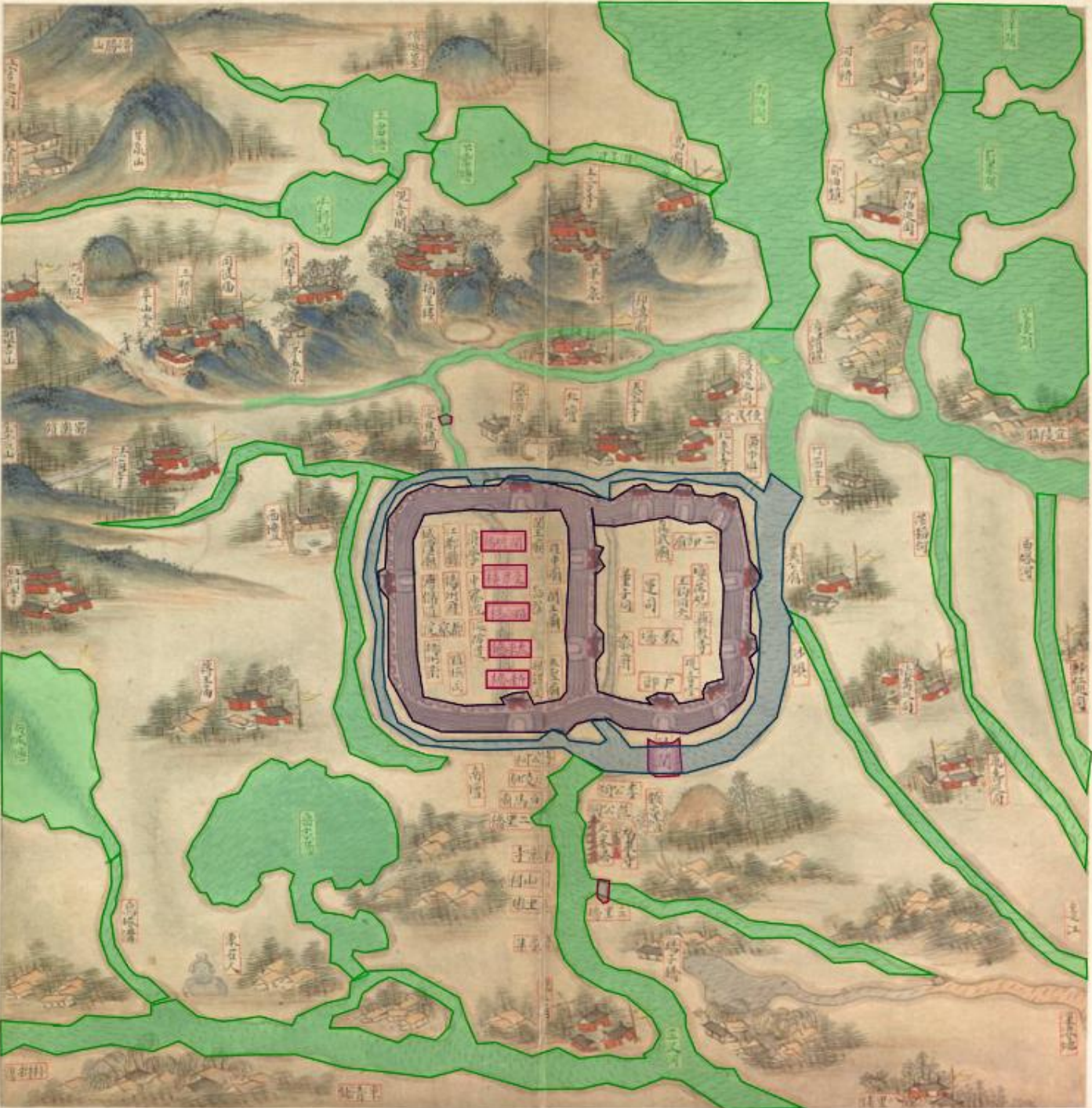
Box

Selection

List

Metadata

#2



Sort by custom order Show All

Drag cards to change order

city\_wall city\_wall\_outer\_wall

yangzhou\_cheng · 揚州府城 · <https://maps.cga.harvard.edu/tgaz/placenam...>

16:31 May 23

bridge

yangzhou\_ying'en\_qiao · 迎恩橋 · unadorned · #9d9080 · basic bridge · extramural · no

10:50 May 23

bridge

yangzhou\_chaoguan\_qiao · 鈔關 · striped · #816f59 · floating bridge · extramural · no

10:01 May 28

water

yangzhou\_lvjang\_hu · 淥洋湖 · lake · extramural

11:00 May 23

water


yangzhou\_fengsai\_hu · 葑塞湖 · lake · extramural

11:01 May 23



# Image Gallery

IMMARKUS

 Images

 Data Model

 Knowledge Graph

 Export

 X-MARKUS

 About


 Help

Folder

## Leuven University Hall

 Metadata

 Import IIIF

 Show unannotated

 Grid 



véritable représentation de...  
4,259 x 1,314



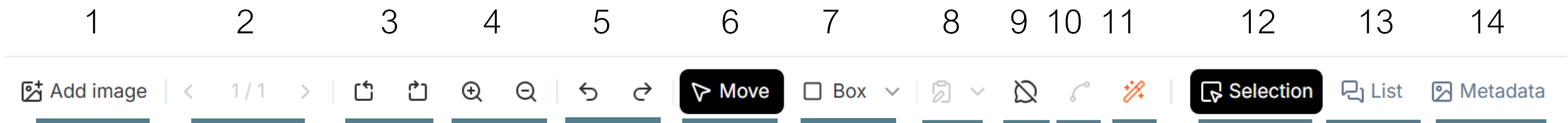
Université de Louvain - Le...  
2,910 x 4,313



La Halle aux Draps  
2,919 x 2,509



# Overview

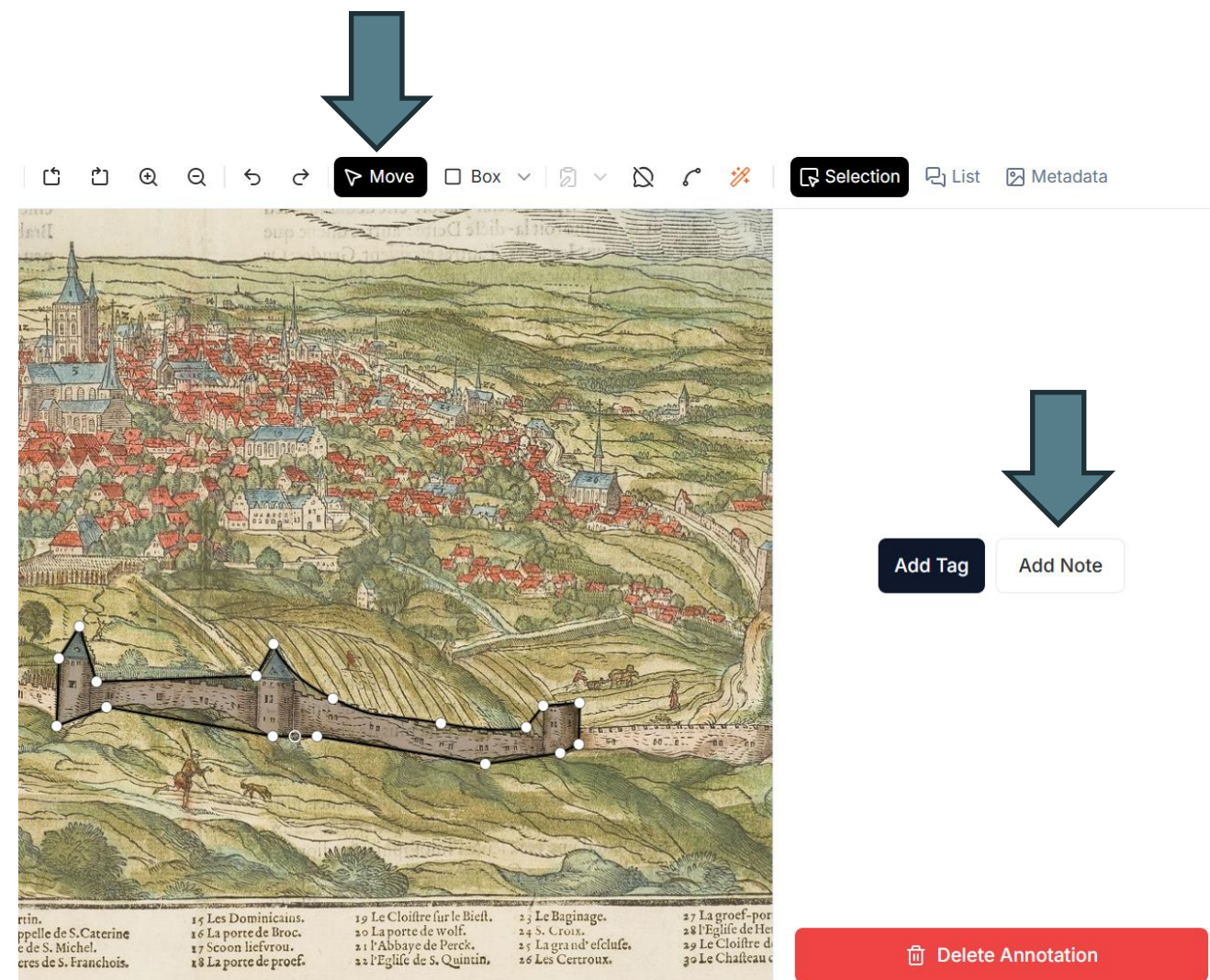


1. Add an image
2. Browse images in the same subfolder
3. Rotate image 90° left or right
4. Zoom in or out
5. Undo or redo
6. Move (pan) across the image
7. Draw a shape (select box, polygon, ellipse, or path)
8. Copy an image snippet to the clipboard
9. Hide all annotations
10. Use smart tools to select irregular shapes or transcribe text
11. Add a relation between two entities
12. View details of the currently selected annotation
13. List all annotations
14. Add or edit individual image metadata



# Drawing Annotations

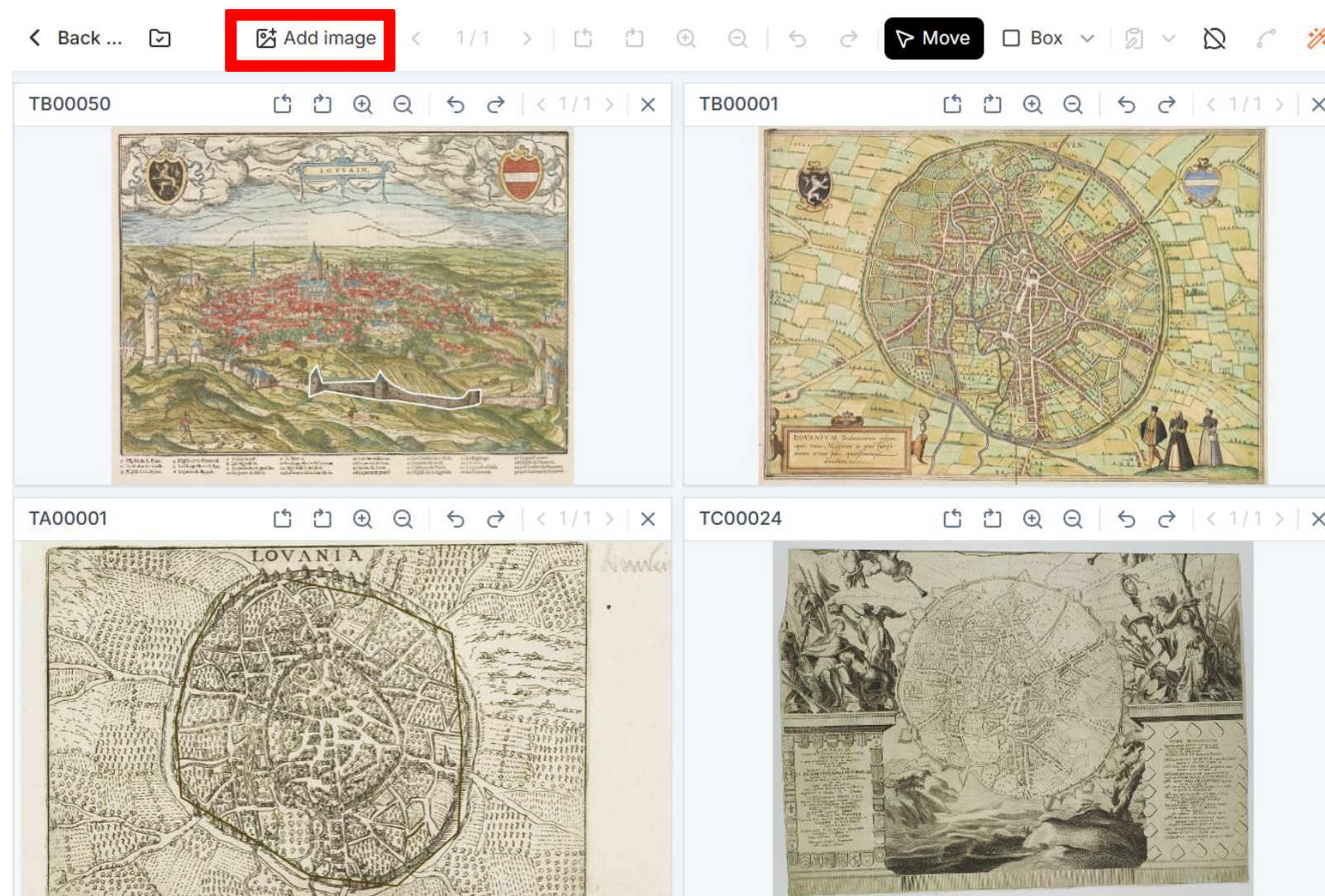
1. Click the draw button (blue arrow) and select a shape (**box, polygon, ellipse, or path**)
2. Click once (without holding the mouse button) to start drawing
3. For polygons: each click adds a point
4. **Double click** to close the shape
5. Add Tag or Note





# Annotating Multiple Images Simultaneously

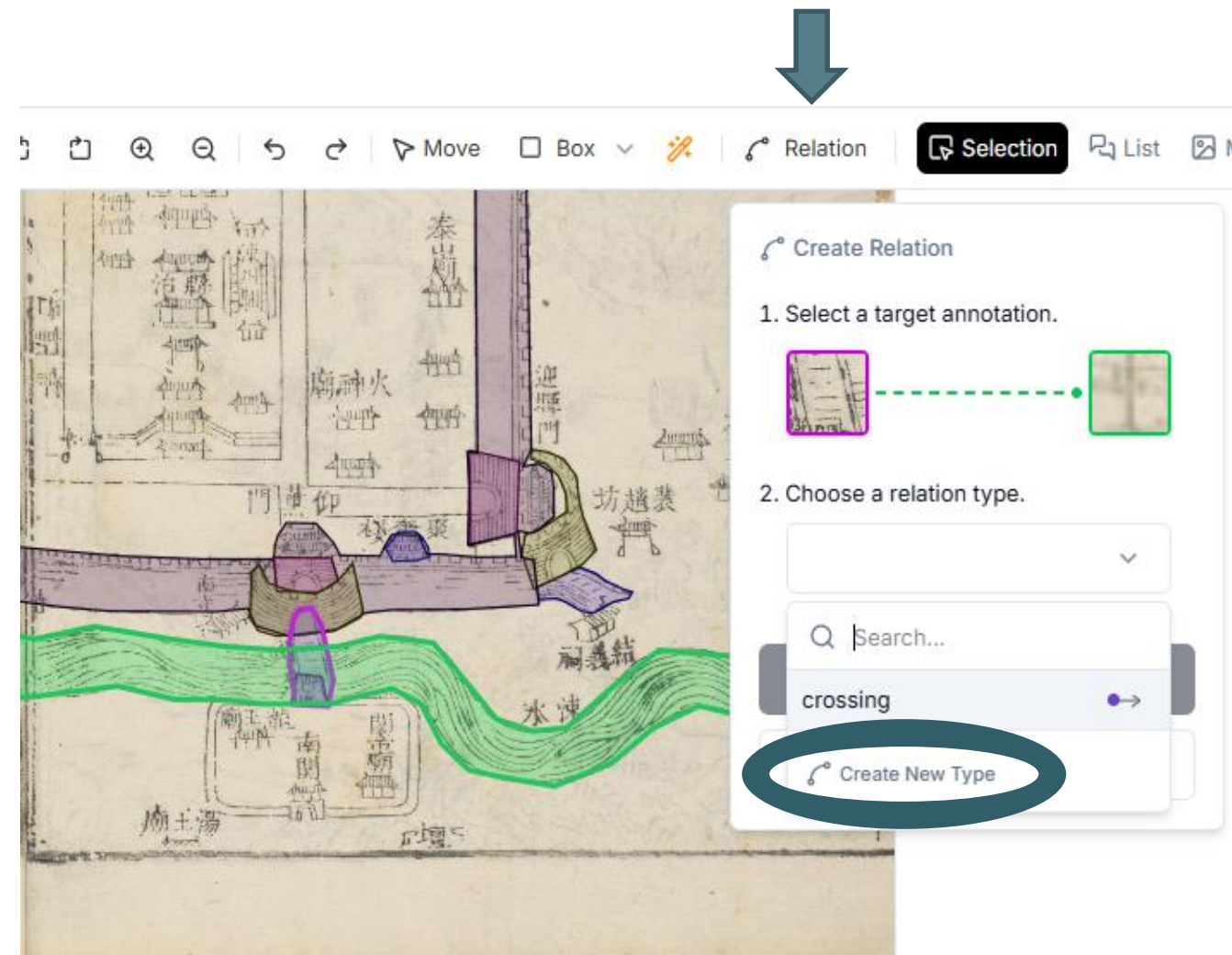
1. Click **Add Image** and select the images you want to annotate together
2. You can drag and drop windows to adjust the layout





# Defining Relationships between Image Regions

1. Select the **source** entity
2. Click **Relation** in the menu bar
3. Select the **target** entity
4. **Create New Type** or choose an existing relation type

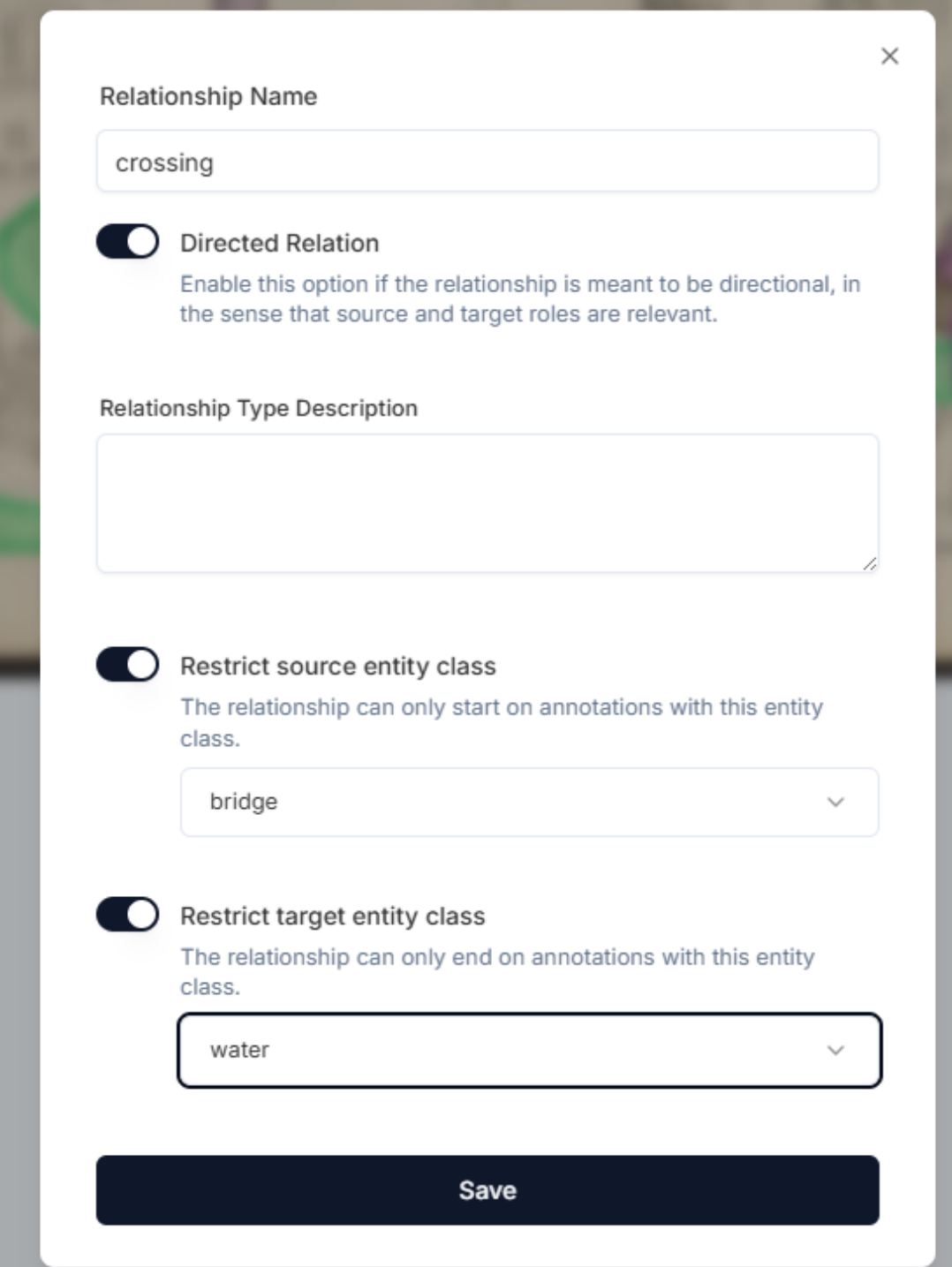




# Defining Relationships

---

1. Enter the **Relationship Name**
2. (Optional) Indicate direction
3. (Optional) Set restrictions for **source** and/or **target** entity classes
4. Click **Save**

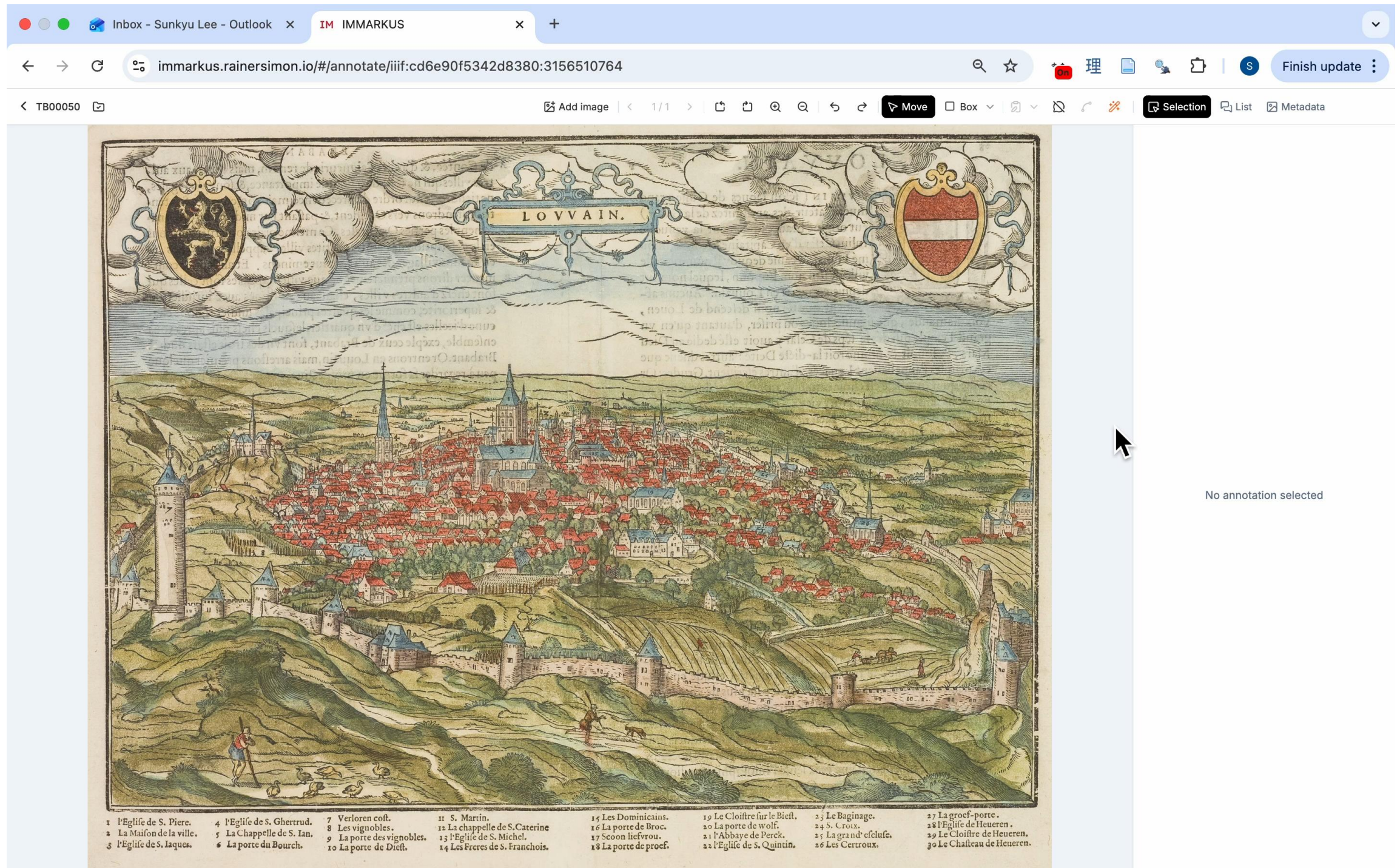


A screenshot of a 'Defining Relationships' dialog box. The dialog has a title bar with a close button (X) in the top right corner. It contains the following fields and options:

- Relationship Name:** A text input field containing the word 'crossing'.
- Directed Relation:** A toggle switch that is currently turned on. Below it is a description: 'Enable this option if the relationship is meant to be directional, in the sense that source and target roles are relevant.'
- Relationship Type Description:** A large, empty text area for a description.
- Restrict source entity class:** A toggle switch that is currently turned on. Below it is a description: 'The relationship can only start on annotations with this entity class.' Underneath is a dropdown menu showing 'bridge'.
- Restrict target entity class:** A toggle switch that is currently turned on. Below it is a description: 'The relationship can only end on annotations with this entity class.' Underneath is a dropdown menu showing 'water'.
- Save:** A dark blue button at the bottom right of the dialog.



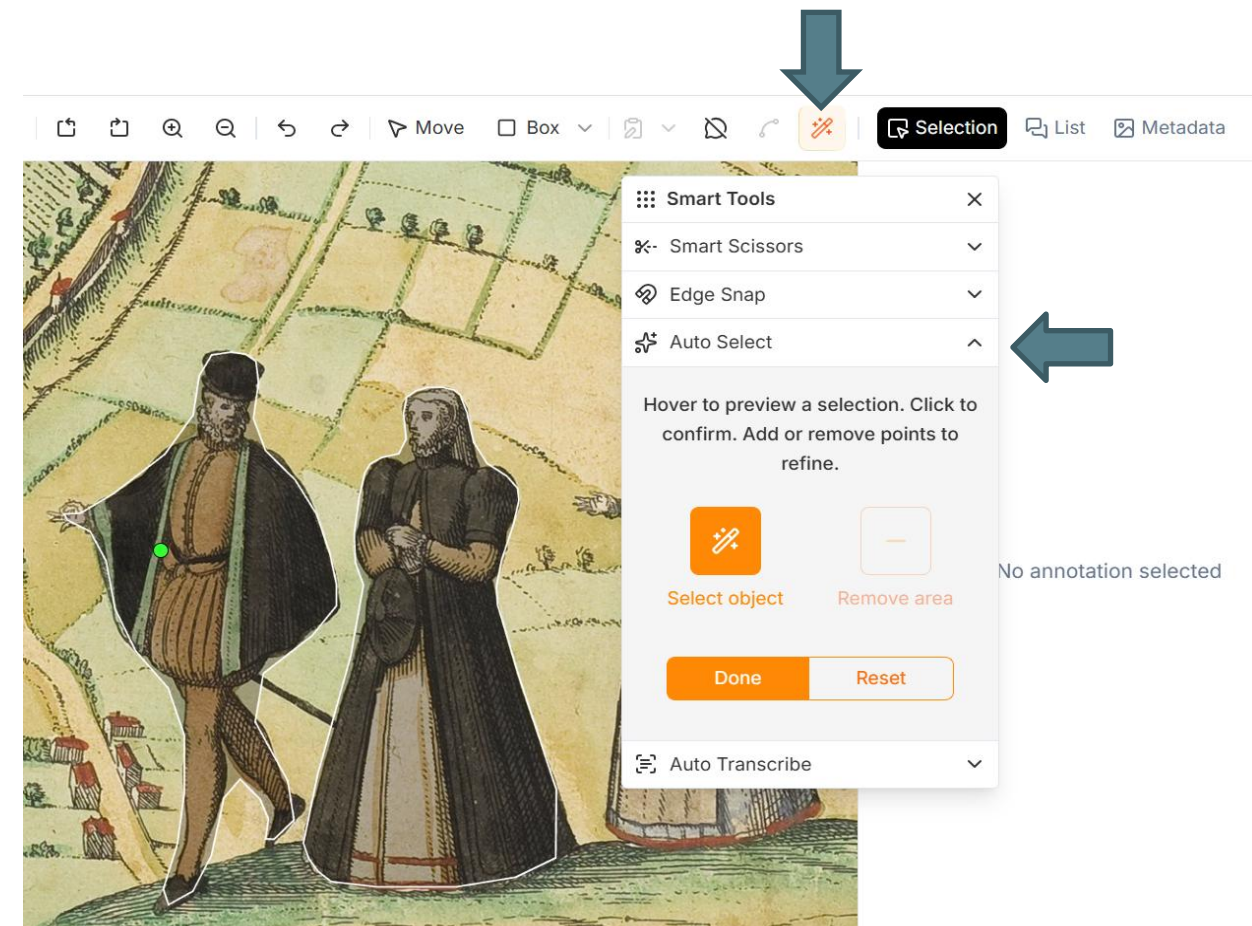
# Smart Selection Tools: [Auto Select](#)





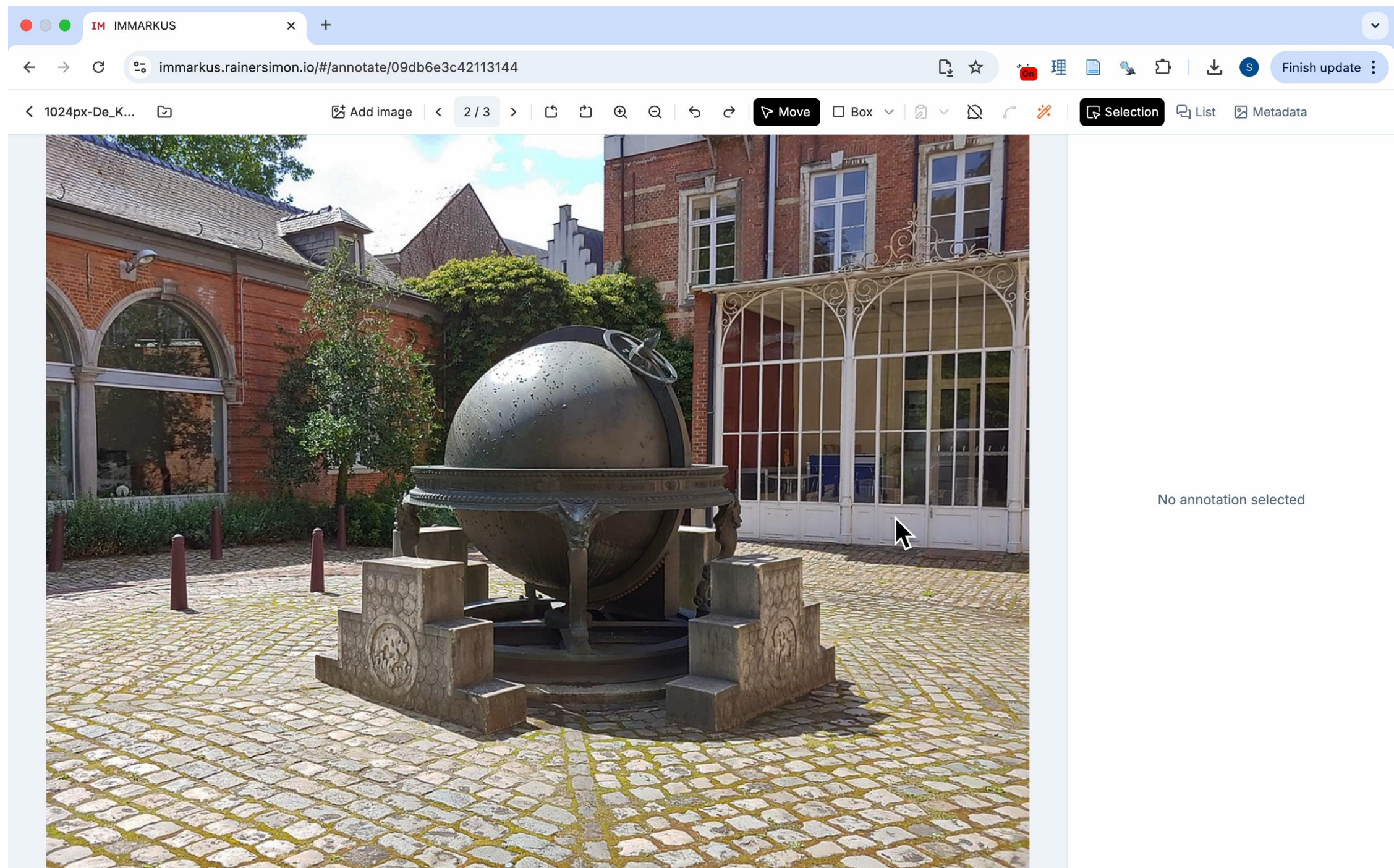
# Smart Selection Tools

1. Click the ✨ magic wand icon
2. Click **Auto Select** and **Select object**
3. Wait for the detection model to load
4. Hover to preview the detected object (highlighted area)
5. Click the highlighted area to confirm selection
6. To refine:
  - click nearby points to add areas (**green** dots)
  - click **Remove area** and then click areas (**red** dots) to exclude them
7. Click **Done** to generate a polygon
8. Click the X close icon to exit the tool





# Smart Selection Tools: Smart Scissors





# Copying Image Snippets



< 1024px-De\_K...📁🖼️ Add image< 2 / 3 >📄📄🔍🔍↶↷👉 Move📏 Box ▾📄🗑️🔄🔗🔗📄 Selection📄 List📄 Metadata



Copy image snippet to clipboard

Add Tag

Add Note

🗑️ Delete Annotation



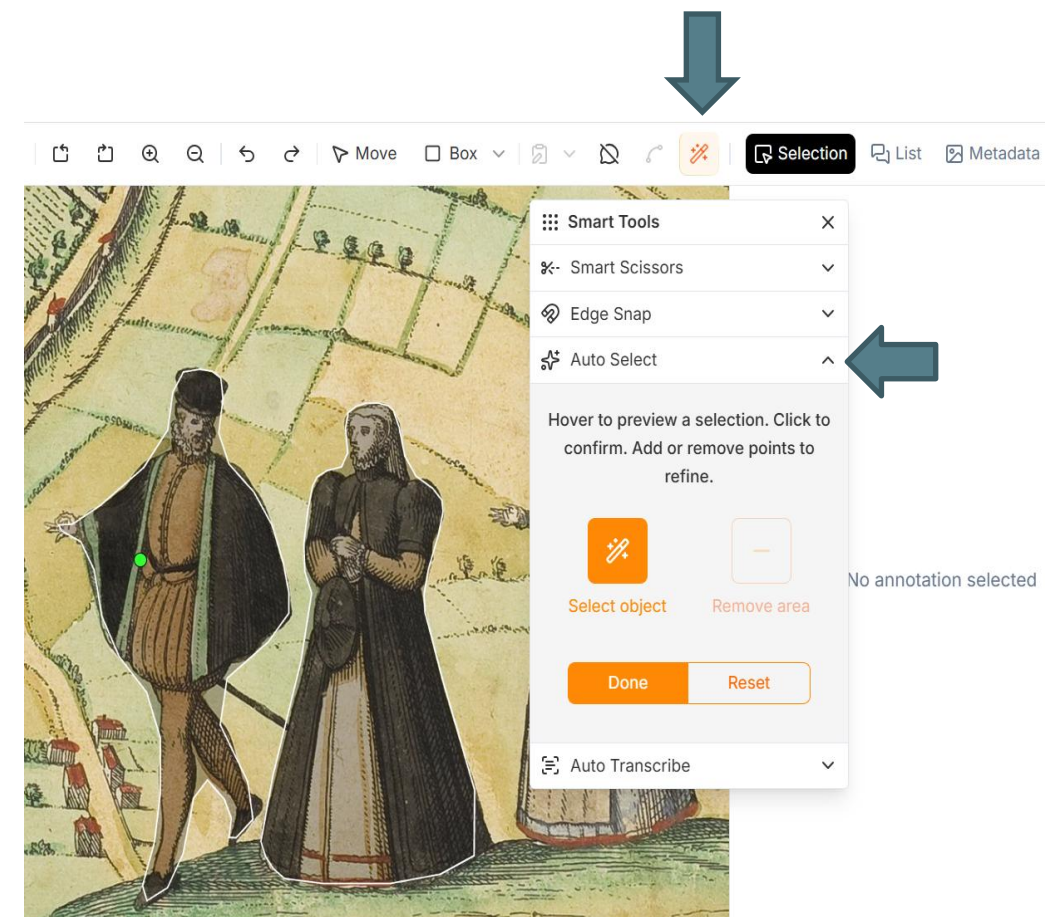
# Practice 2. Annotating Images with AI assistance

---

Use the **magic wand** to annotate images

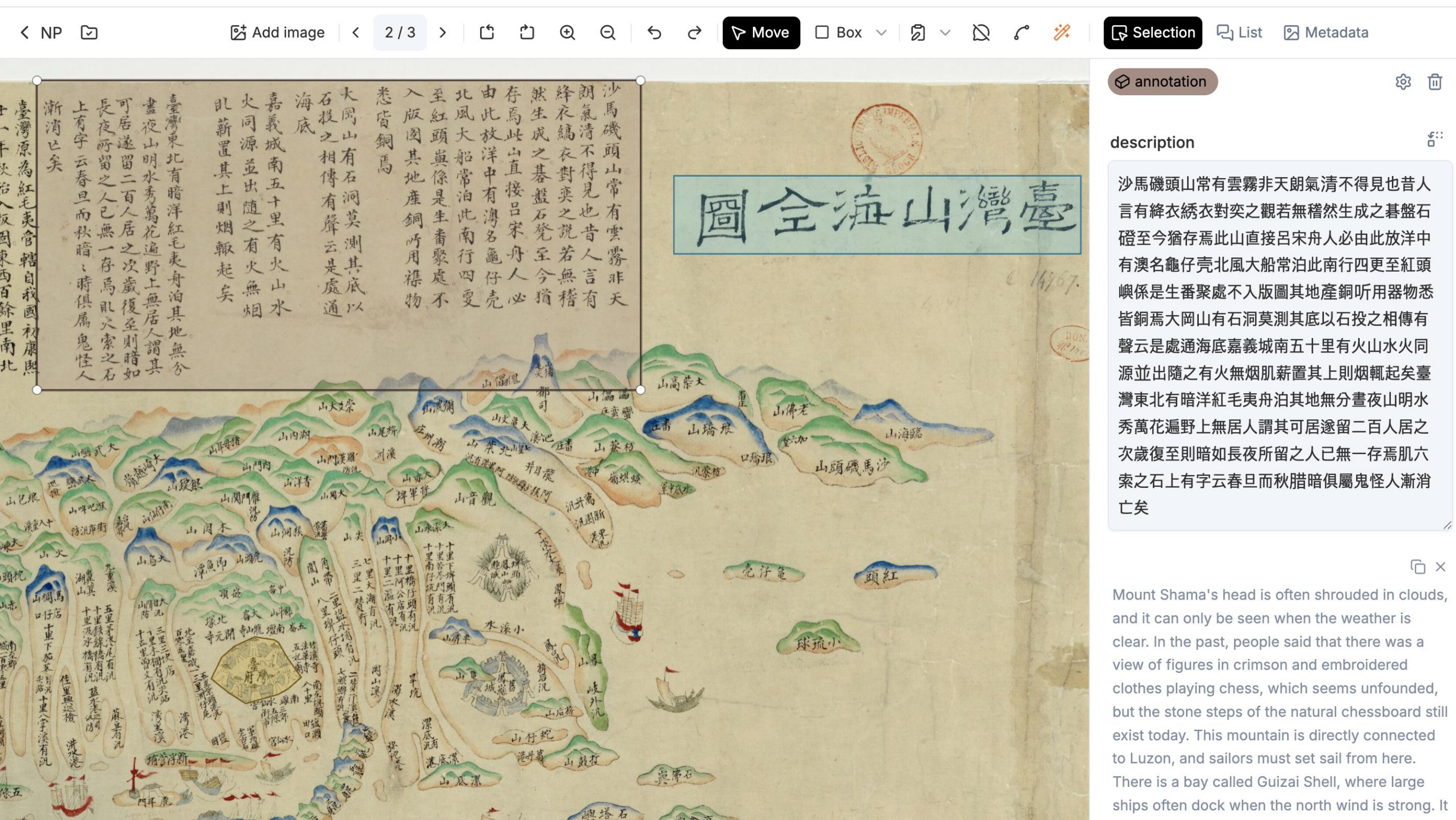
1. Try using smart tools (**smart scissors** or **auto select**) to draw a shape
  - Wait for the detection model to load and hover to preview a selection
  - Click on the highlighted area to confirm
  - Click **Done**
2. **Add tags or notes** to the shape you drew
3. Click **List** to view all annotations

➤ Stuck? Try again after refreshing the page!





# Transcribing (& Translating) Text from Images



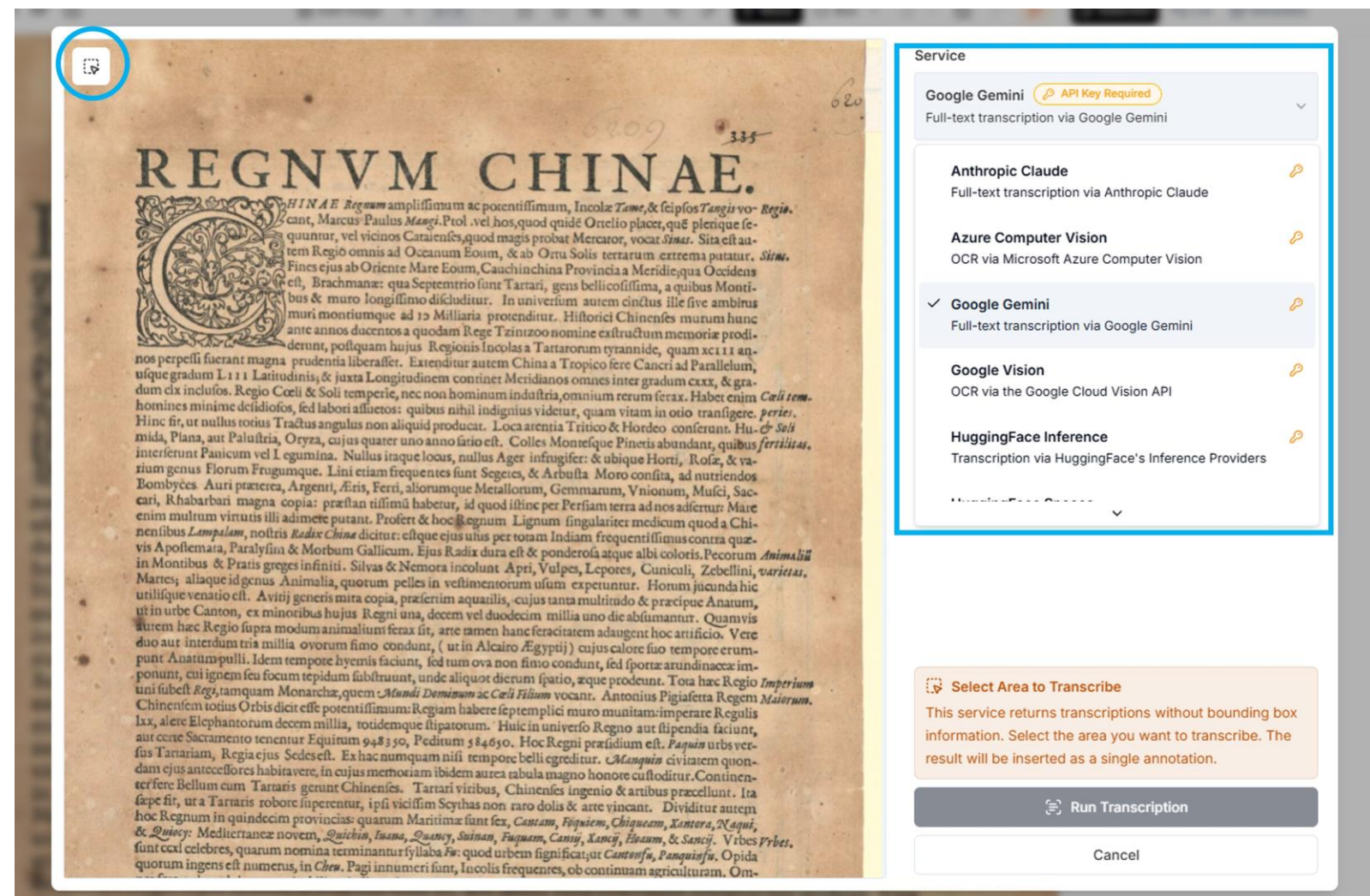
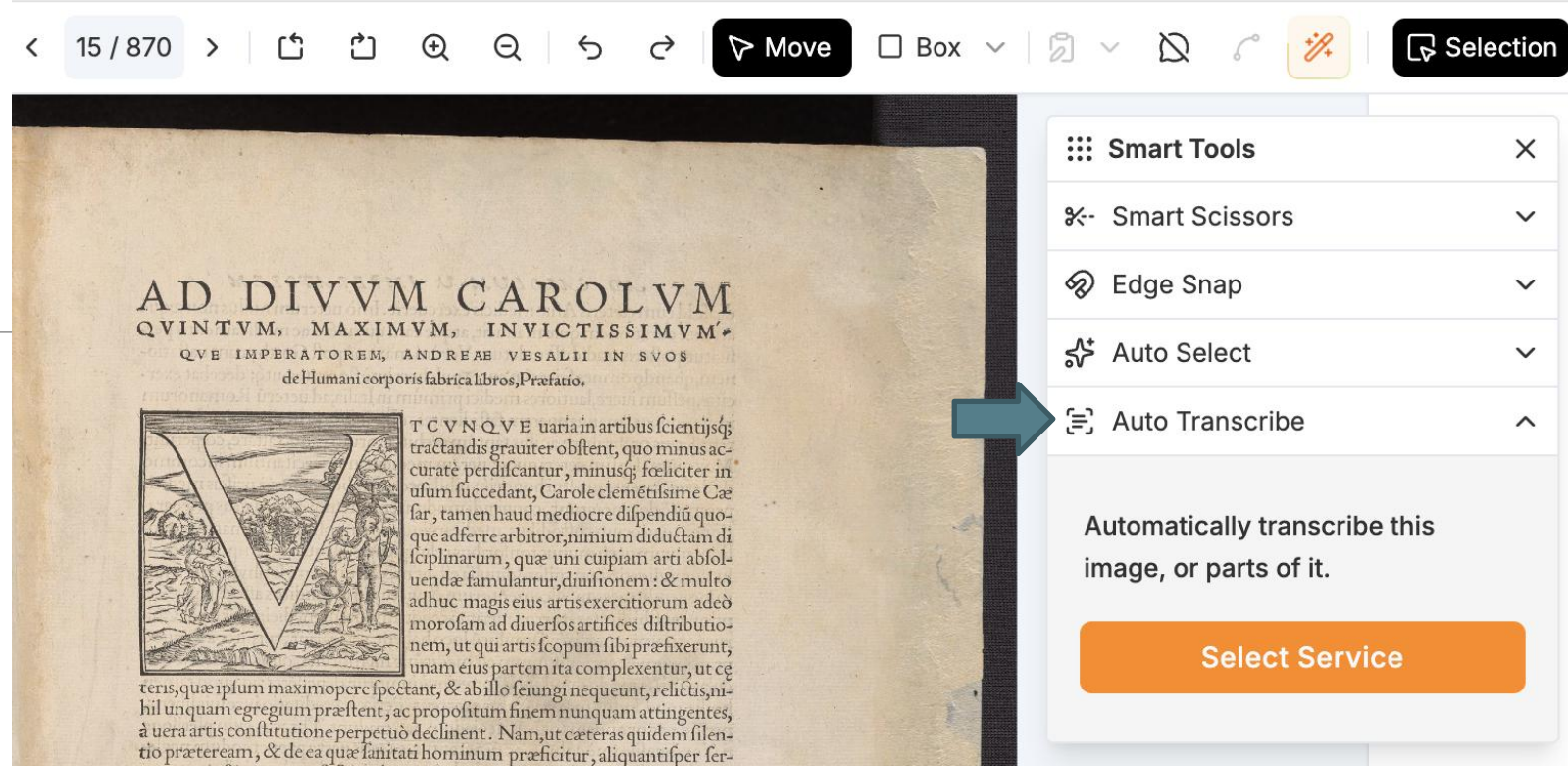


# Auto-Transcribe

1. Click **Auto Transcribe**
2. Click **Select Service**
3. Select a transcription service

! Some services require an API key (see [IMMARKUS Wiki](#) for instructions) !

4. Click **Run Transcription**

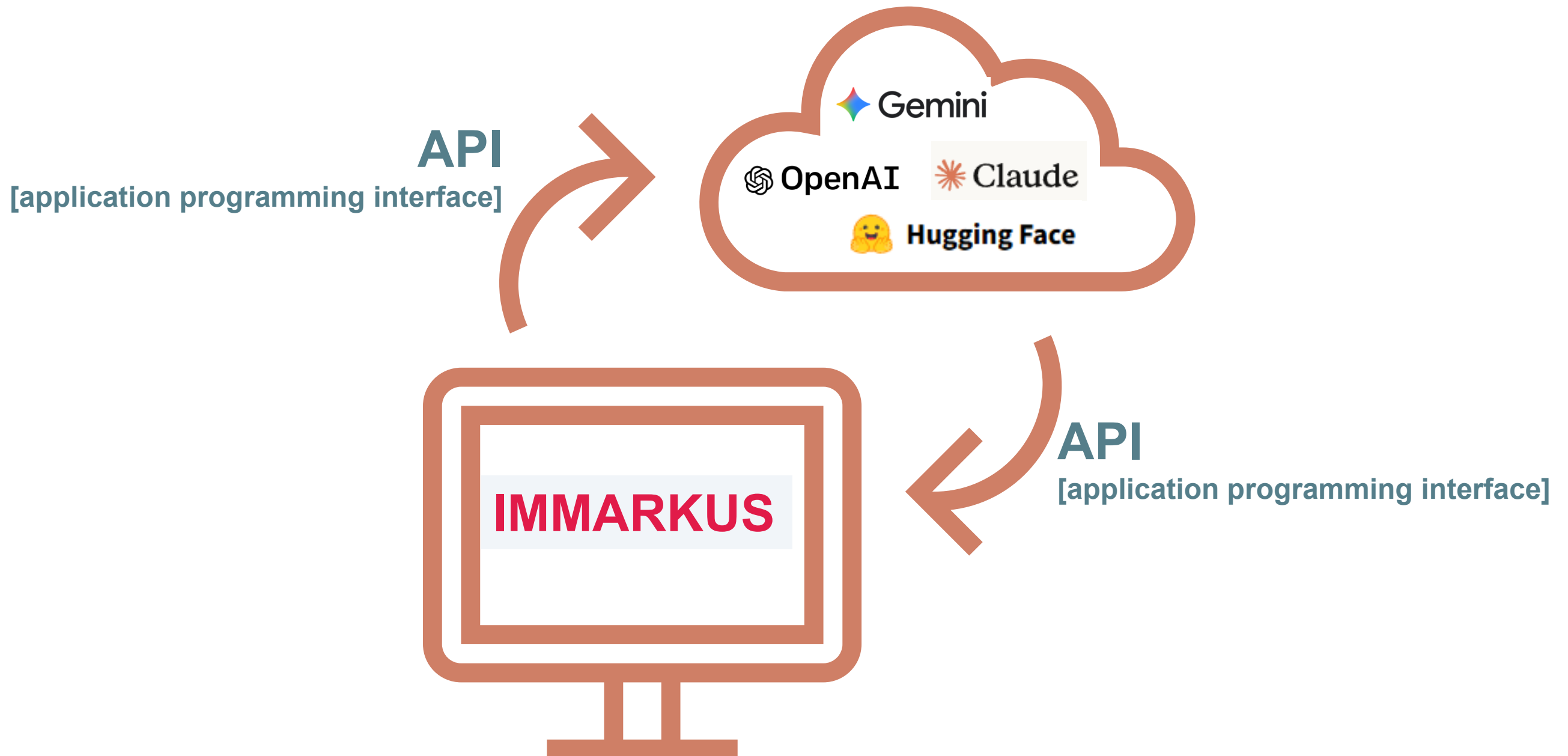




# What is an API key?

---

API: a mechanism for computers or services to communicate with each other





# What is an API key?

API **key**: a unique "digital key" provided by an AI service that unlocks its features and allows your app (e.g., IMMARKUS) to access them

## Access Tokens

### User Access Tokens

+ Create new token

Access tokens authenticate your identity to the Hugging Face Hub and allow applications to perform actions based on token permissions.

⚠ Do not share your **Access Tokens** with anyone; we regularly check for leaked Access Tokens and remove them immediately.

Name ▾	Value	Last Refreshed Date ▾	Last Used Date ▾	Permissions ▾	
🔑 IMMARKUS auto transcribe	hf_...iqfW	Aug 4	about 6 hours ago	FINEGRAINED	⋮



**Hugging Face**

open-source AI platform and community that currently offers an easy, low-cost way to run transcription models using your own API key



# How to Get an API key

1. Click the [link](https://huggingface.co/):  
<https://huggingface.co/>
2. Sign up a or log in your **Hugging Face account**
3. Click **Settings**
4. Click **Access Tokens**
5. Click **Create new token**

The image shows a sequence of three screenshots from the Hugging Face website, illustrating the steps to create an API key. A large blue arrow points from the first screenshot to the second, and another points from the second to the third.

**First Screenshot:** The Hugging Face homepage. The user 'dawnz1z' is logged in. The left sidebar shows the 'Settings' option. A blue arrow points to the 'Settings' link.

**Second Screenshot:** The 'Settings' page for user 'dawn zhuang'. The 'Access Tokens' option is highlighted in the left sidebar. A blue arrow points to the 'Access Tokens' link.

**Third Screenshot:** The 'Access Tokens' page. It shows a table of existing tokens and a '+ Create new token' button, which is highlighted with a red box and a blue arrow.

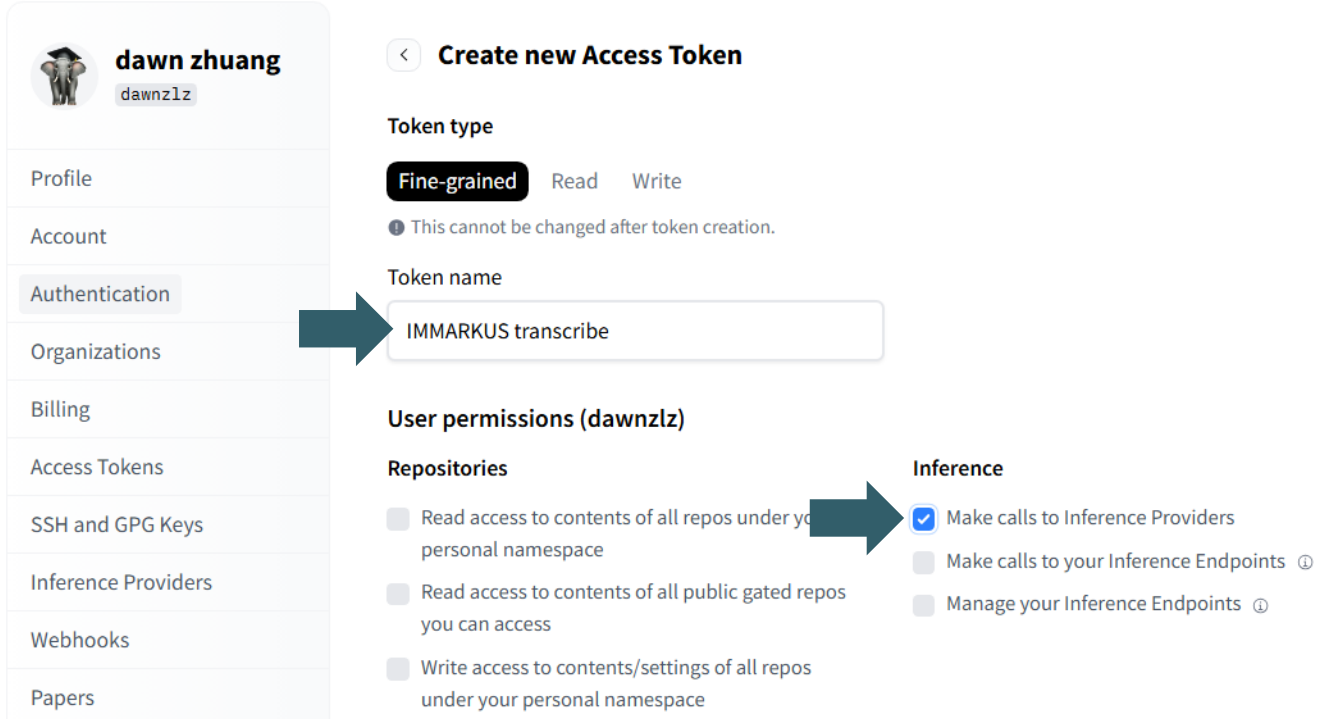
**Access Tokens Table:**

Name	Value	Last Refreshed Date	Last Used Date	Permissions
immarkus-new	hf_...srlid	about 1 hour ago	about 1 hour ago	FINEGRAINED
IMMARKUS auto transcribe	hf_...iqfW	Aug 4	about 5 hours ago	FINEGRAINED

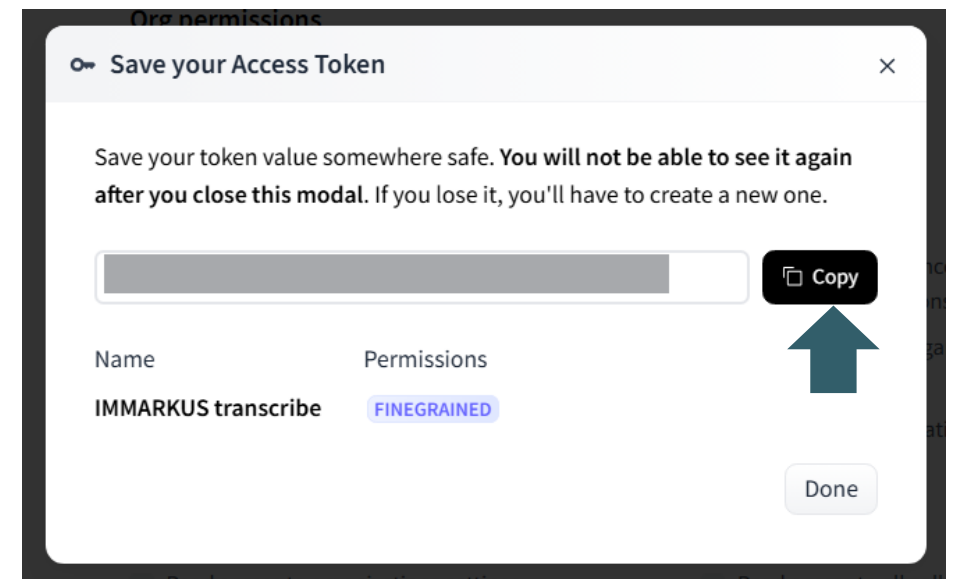


# How to Get an API key

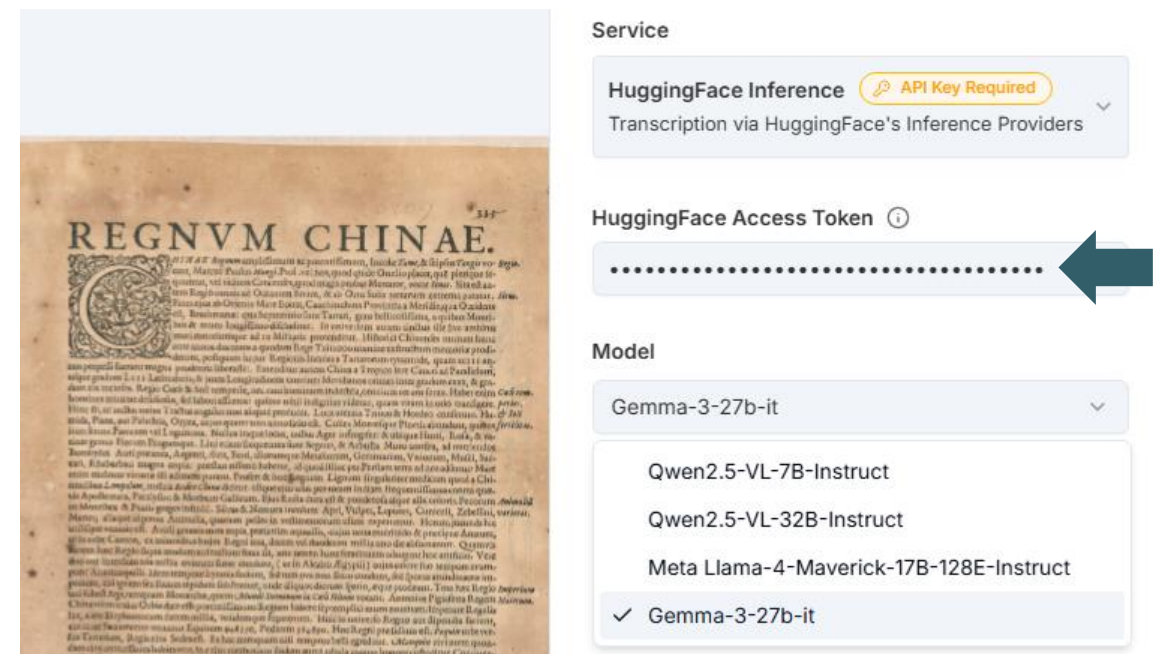
6. Name your token
7. Check **Make calls to Inference Providers under Inference**
8. Click **Create token**
9. Copy the token (API key) and paste it to the IMMARKUS interface under service **HuggingFace Inference**



The screenshot shows the 'Create new Access Token' page in a GitHub profile. The user is 'dawn zhuang' (dawnz1z). The 'Token type' is set to 'Fine-grained'. The 'Token name' is 'IMMARKUS transcribe'. Under 'User permissions (dawnz1z)', the 'Repositories' section has three options, all of which are unchecked. The 'Inference' section has three options: 'Make calls to Inference Providers' (checked), 'Make calls to your Inference Endpoints' (unchecked), and 'Manage your Inference Endpoints' (unchecked). A blue arrow points from the 'Token name' field to the 'Inference' section.



The screenshot shows a modal dialog titled 'Save your Access Token'. It contains a warning: 'Save your token value somewhere safe. You will not be able to see it again after you close this modal. If you lose it, you'll have to create a new one.' Below the warning is a text input field containing a long alphanumeric string. To the right of the input field is a 'Copy' button. Below the input field is a table with two columns: 'Name' and 'Permissions'. The table has one row with 'IMMARKUS transcribe' in the 'Name' column and 'FINEGRAINED' in the 'Permissions' column. At the bottom right of the modal is a 'Done' button. A blue arrow points from the 'Copy' button to the 'Done' button.



The screenshot shows the IMMARKUS interface. On the left is a preview of a document titled 'REGNUM CHINAE'. On the right is a form with two sections: 'Service' and 'Model'. The 'Service' section has a dropdown menu with 'HuggingFace Inference' selected, and a note 'API Key Required'. The 'Model' section has a dropdown menu with 'Gemma-3-27b-it' selected. Below the 'Model' section is a text input field for the 'HuggingFace Access Token', which contains a long alphanumeric string. A blue arrow points from the 'Copy' button in the previous screenshot to this text input field.



# Transcribing Text from Images

## 1. Open the Auto Transcribe feature and select a service



The screenshot shows a digital archive interface. On the left, there is a historical illustration of a large, multi-story building with a prominent clock tower and a large clock face. The building is surrounded by a street with people and a horse. On the right, there is a text transcription panel. The panel has a header with a back arrow, the text 'TA00500', and a search icon. Below the header, there are several icons: a list icon, a magnifying glass, a move icon, a box icon, a selection icon, a list icon, and a metadata icon. The main content area of the panel shows the text of the transcription. The text is in French and describes the building and its history. The text is as follows:

Dès lors on comptoit à Louvain plus de 2400 Métiers de Tisserands-Drapiers, qui s'augmenterent tellement qu'en 1350 il y avoit audelà de quatre mille Métiers : & pour entretenir chaque Métier il faut compter au moins 40 personnes ; de sorte qu'alors il y avoit plus de cent soixante mille personnes occupées pour la Draperie de Louvain : aussi de ce tems toute la ville étoit batié jusqu'aux remparts extérieurs : & l'on sonnoit la Cloche aux heures que les ouvriers quittoient l'ouvrage, pour avertir les Bourgeois de se retirer avec les enfans, pour ne pas être importunés par le nombre d'ouvriers.

Ce bâtiment fut ensuite destiné pour les Ecoles publiques de l'Université. Il fut réhaussé l'an 1675, lorsque les trois premières pierres furent placées ; la première par Mr. *Libert De Pape* Abbé de Parc, la seconde par le Conseiller *Masselaer*, & la troisième par le Bourgeois *Jean-Laurent De Vroge*.

L'an 1723 l'on y a ajouté un magnifique Edifice pour la Bibliothèque.

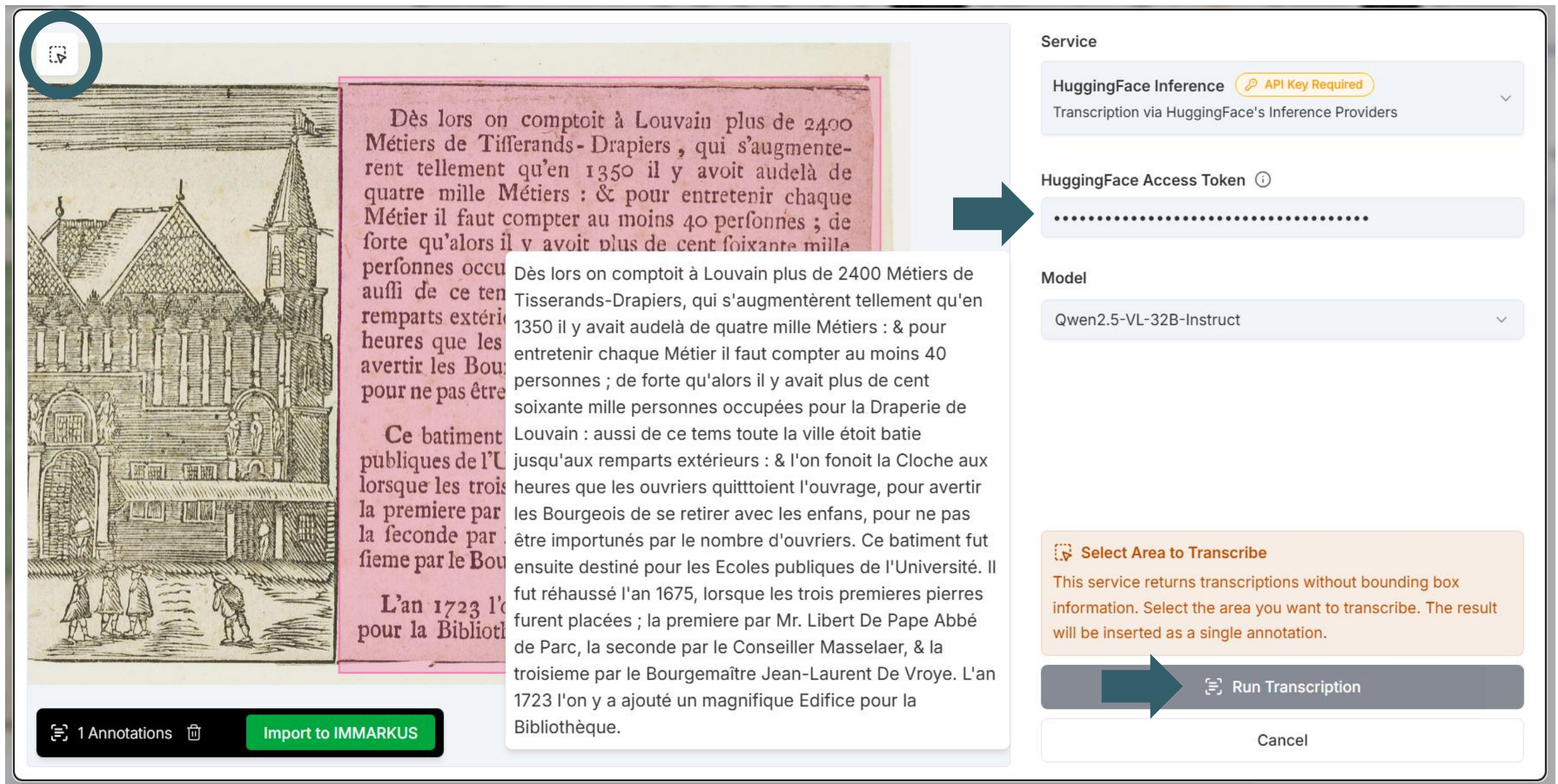
On the right side of the interface, there is a sidebar with a list of tools. The tools are: Smart Tools, Smart Scissors, Edge Snap, Auto Select, and Auto Transcribe. The 'Auto Transcribe' tool is highlighted with a blue border. Below the list, there is a section titled 'Automatically transcribe this image, or parts of it.' which contains a checkbox labeled 'Enable external AI tools.' that is checked. Below the checkbox, there is a text box with the following text: 'I understand that images I send are processed by 3rd-party services and that I'm responsible for what I upload.' At the bottom of the sidebar, there is an orange button labeled 'Select Service' with a hand cursor icon pointing to it.



# Transcribing Text from Images

2. Set up your **API key** and select an area to transcribe

3. Click **Run Transcription**.



The screenshot displays the HuggingFace Transcription interface. On the left, a historical document image is shown with a pink rectangular selection box highlighting a paragraph of text. A blue circle highlights the 'Select Area to Transcribe' icon in the top-left corner. A large blue arrow points from the selected text area to the 'Run Transcription' button. The right panel contains the following settings:

- Service:** HuggingFace Inference (API Key Required) - Transcription via HuggingFace's Inference Providers
- HuggingFace Access Token:** A field with a masked token (dots) and an information icon.
- Model:** Qwen2.5-VL-32B-Instruct

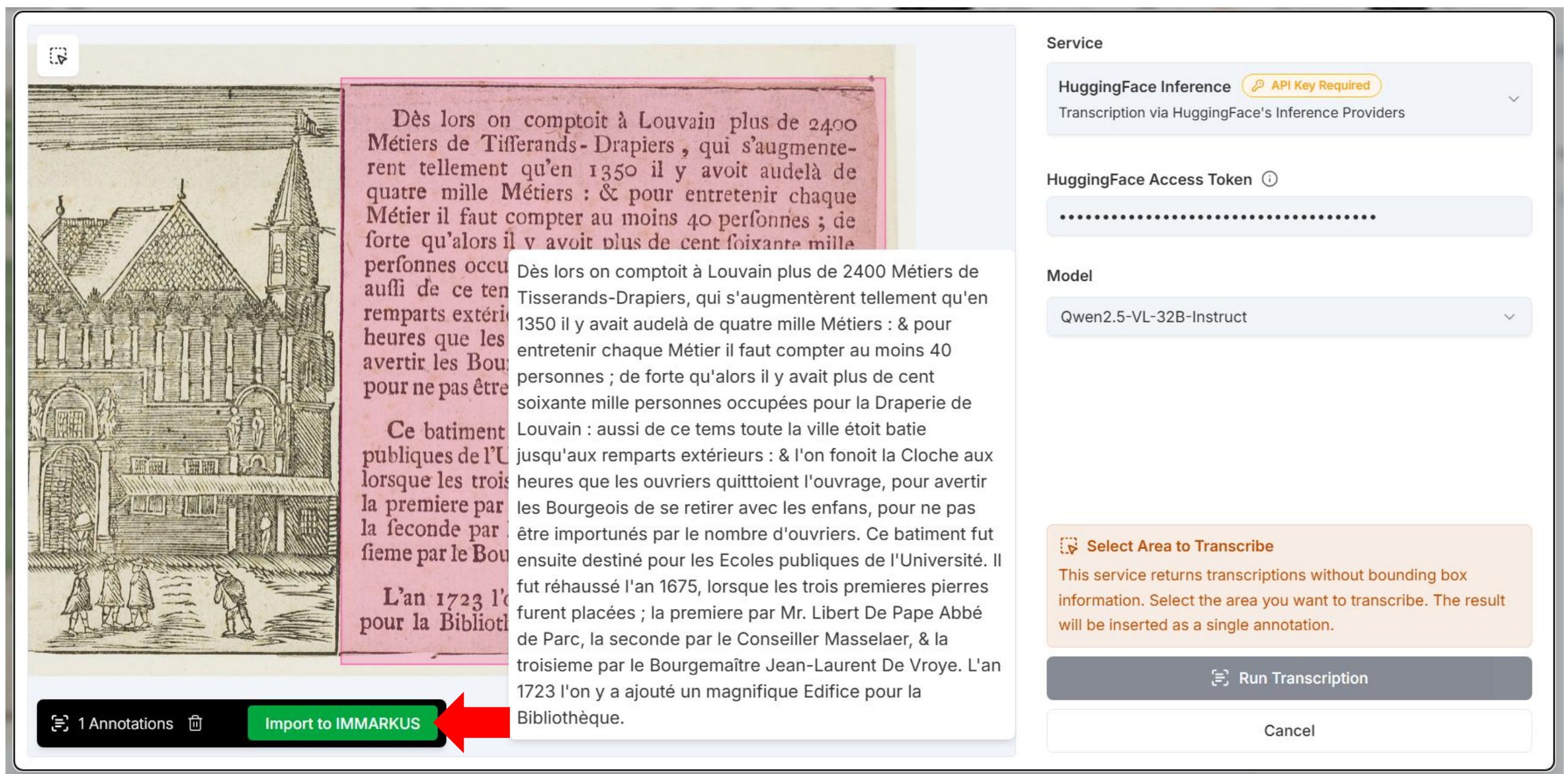
At the bottom of the right panel, there is a note: "Select Area to Transcribe. This service returns transcriptions without bounding box information. Select the area you want to transcribe. The result will be inserted as a single annotation." Below this note are two buttons: "Run Transcription" (with a blue arrow pointing to it) and "Cancel".

At the bottom left of the interface, there is a status bar showing "1 Annotations" and a green button labeled "Import to IMMARKUS".



# Transcribing Text from Images

4. Hover over the selected area to view the transcription, and import it into IMMARKUS to store, edit, or translate it



The screenshot displays the IMMARKUS interface for transcribing text from images. On the left, a historical document image is shown with a pink rectangular selection box highlighting a paragraph of text. A tooltip window appears over the selected text, displaying the transcribed content. At the bottom left, there is a button labeled "Import to IMMARKUS" with a red arrow pointing to it, and a status bar showing "1 Annotations". On the right, a sidebar contains settings for the transcription service and model.

**Service**

HuggingFace Inference API Key Required  
Transcription via HuggingFace's Inference Providers

**HuggingFace Access Token** ⓘ  
.....

**Model**  
Qwen2.5-VL-32B-Instruct

**Select Area to Transcribe**  
This service returns transcriptions without bounding box information. Select the area you want to transcribe. The result will be inserted as a single annotation.

**Run Transcription**

Cancel

**Transcription:**

Dès lors on comptoit à Louvain plus de 2400 Métiers de Tisserands-Drapiers, qui s'augmentèrent tellement qu'en 1350 il y avoit auelà de quatre mille Métiers : & pour entretenir chaque Métier il faut compter au moins 40 personnes ; de forte qu'alors il y avoit plus de cent soixante mille personnes occupées pour la Draperie de Louvain : aussi de ce tems toute la ville étoit batie jusqu'aux remparts extérieurs : & l'on fonoit la Cloche aux heures que les ouvriers quitttoient l'ouvrage, pour avertir les Bourgeois de se retirer avec les enfans, pour ne pas être importunés par le nombre d'ouvriers. Ce batiment fut ensuite destiné pour les Ecoles publiques de l'Université. Il fut réhaussé l'an 1675, lorsque les trois premieres pierres furent placées ; la premiere par Mr. Libert De Pape Abbé de Parc, la seconde par le Conseiller Masselaer, & la troisieme par le Bourgemaître Jean-Laurent De Vroye. L'an 1723 l'on y a ajouté un magnifique Edifice pour la Bibliothèque.

**Document Text:**

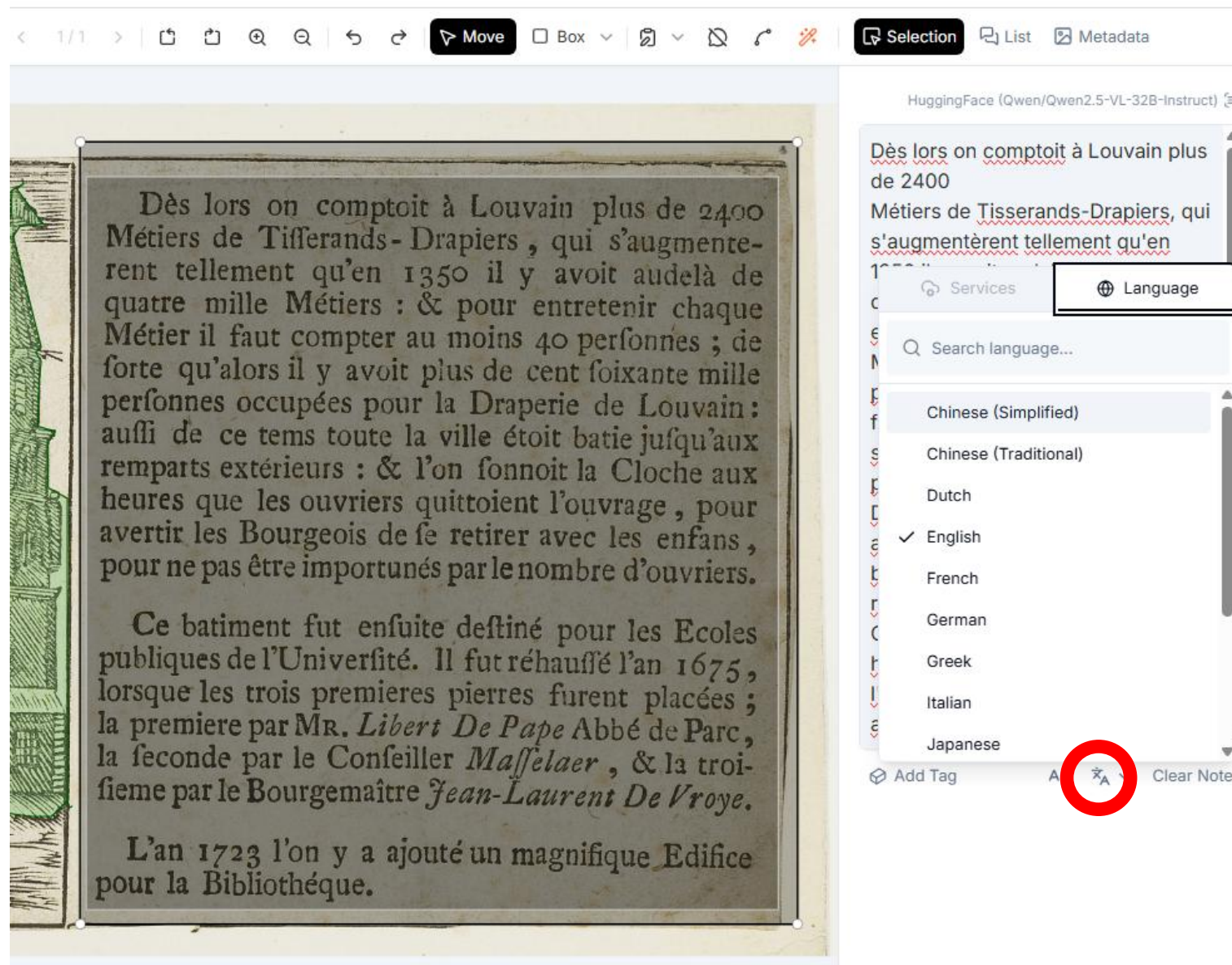
Dès lors on comptoit à Louvain plus de 2400 Métiers de Tisserands-Drapiers, qui s'augmentèrent tellement qu'en 1350 il y avoit auelà de quatre mille Métiers : & pour entretenir chaque Métier il faut compter au moins 40 personnes ; de forte qu'alors il y avoit plus de cent soixante mille personnes occupées pour la Draperie de Louvain : aussi de ce tems toute la ville étoit batie jusqu'aux remparts extérieurs : & l'on fonoit la Cloche aux heures que les ouvriers quitttoient l'ouvrage, pour avertir les Bourgeois de se retirer avec les enfans, pour ne pas être importunés par le nombre d'ouvriers. Ce batiment fut ensuite destiné pour les Ecoles publiques de l'Université. Il fut réhaussé l'an 1675, lorsque les trois premieres pierres furent placées ; la premiere par Mr. Libert De Pape Abbé de Parc, la seconde par le Conseiller Masselaer, & la troisieme par le Bourgemaître Jean-Laurent De Vroye. L'an 1723 l'on y a ajouté un magnifique Edifice pour la Bibliothèque.



# Transcribing Text from Images

5. After importing, click **Show Translation** (red circle)

6. Select the translation service model and the **target language**






# Transcribing Text from Images

## 7. View the translated version of the transcription

< TA00500 📁 ⋮ 🔍 🔍 📌 Move 📦 Box ✂ 📌 Selection 📋 List 📄 Metadata



Dès lors on comptoit à Louvain plus de 2400 Métiers de Tisserands - Drapiers, qui s'augmenterent tellement qu'en 1350 il y avoit audelà de quatre mille Métiers : & pour entretenir chaque Métier il faut compter au moins 40 personnes ; de sorte qu'alors il y avoit plus de cent soixante mille personnes occupées pour la Draperie de Louvain : aussi de ce tems toute la ville étoit batié jusqu'aux remparts extérieurs : & l'on sonnoit la Cloche aux heures que les ouvriers quittoient l'ouvrage, pour avertir les Bourgeois de se retirer avec les enfans, pour ne pas être importunés par le nombre d'ouvriers.

Ce bâtiment fut ensuite destiné pour les Ecoles publiques de l'Université. Il fut réhaussé l'an 1675, lorsque les trois premières pierres furent placées ; la première par Mr. *Libert De Pape* Abbé de Parc, la seconde par le Conseiller *Maffelaer*, & la troisième par le Bourgeois *Jean-Laurent De Vroye*.

L'an 1723 l'on y a ajouté un magnifique Edifice pour la Bibliothèque.

From then on, there were more than 2400 weaving trades in Louvain - Drapers, which increased so much that by 1350 there were more than four thousand trades: and to maintain each trade, at least 40 people had to be counted; so that at that time there were more than one hundred and sixty thousand people employed in the drapery trade in Louvain: also at that time the whole city was built up to the outer ramparts: and the bell was rung at the hours when the workers left work, to warn the citizens to withdraw with their children, so as not to be bothered by the number of workers. This building was subsequently intended for the public schools of the University. It was rebuilt in 1675, when the first three stones were laid; the first by Mr. *Libert De Pape*, Abbot of Parc, the second by Councilor *Maffelaer*, and the third by Mayor *Jean-Laurent De Vroye*. In 1723, a magnificent building was added for the Library.

🏷 Add Tag AA 🔍 🗑 Clear Note

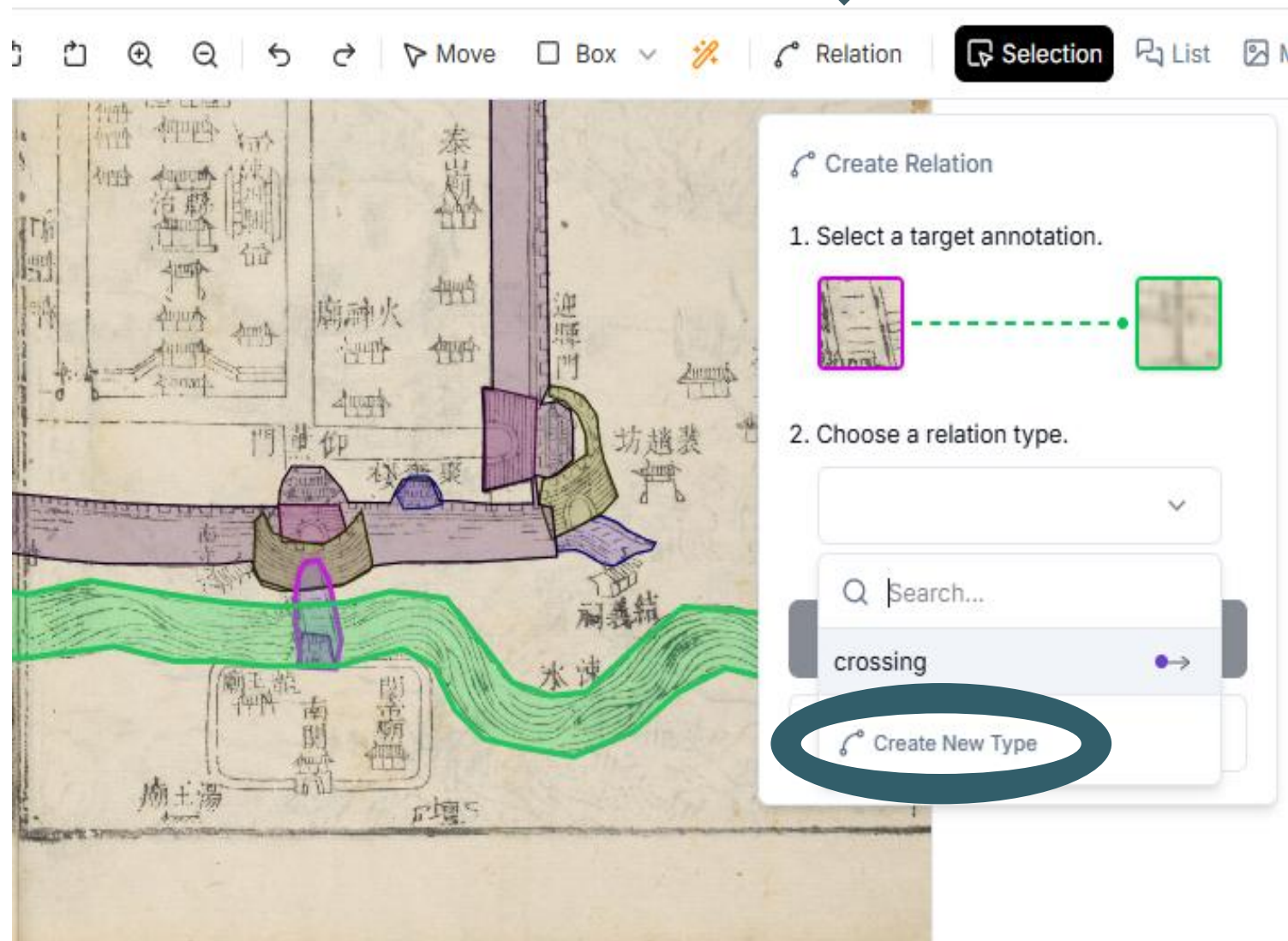
Save

🗑 Delete Annotation



# Break (20 minutes)

- Questions or comments? Please raise your hand or write in the chat



Relationship Name

crossing

☒ Directed Relation

Enable this option if the relationship is meant to be directional, in the sense that source and target roles are relevant.

Relationship Type Description

☒ Restrict source entity class

The relationship can only start on annotations with this entity class.

bridge

☒ Restrict target entity class

The relationship can only end on annotations with this entity class.

water

Save



# 3. What Is a Data Model?

A data model defines:

- What **things** you record (**Entity**)

## Entity Class

obj\_part

bridge\_gate

city\_wall\_barbican

city\_wall\_gate

object

city\_wall

bridge

landform

water

Entity Class \*

city\_wall

Color

#5f3274

Display Name

Parent Class

object

Entity Class Description

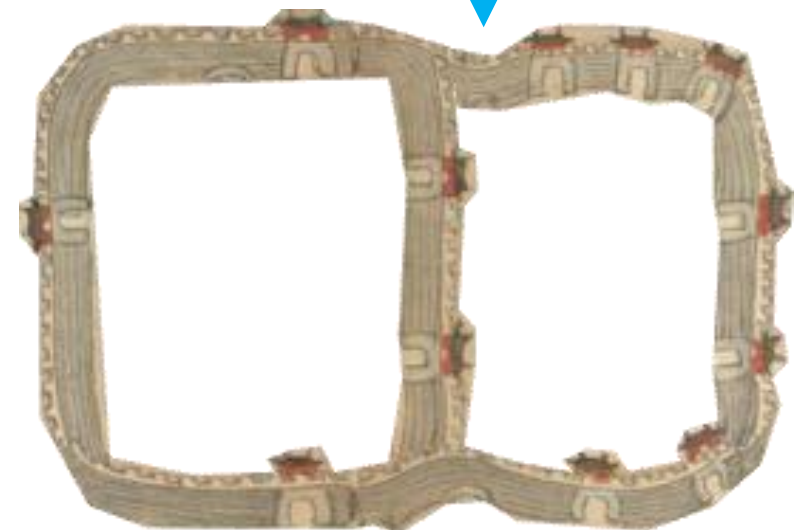
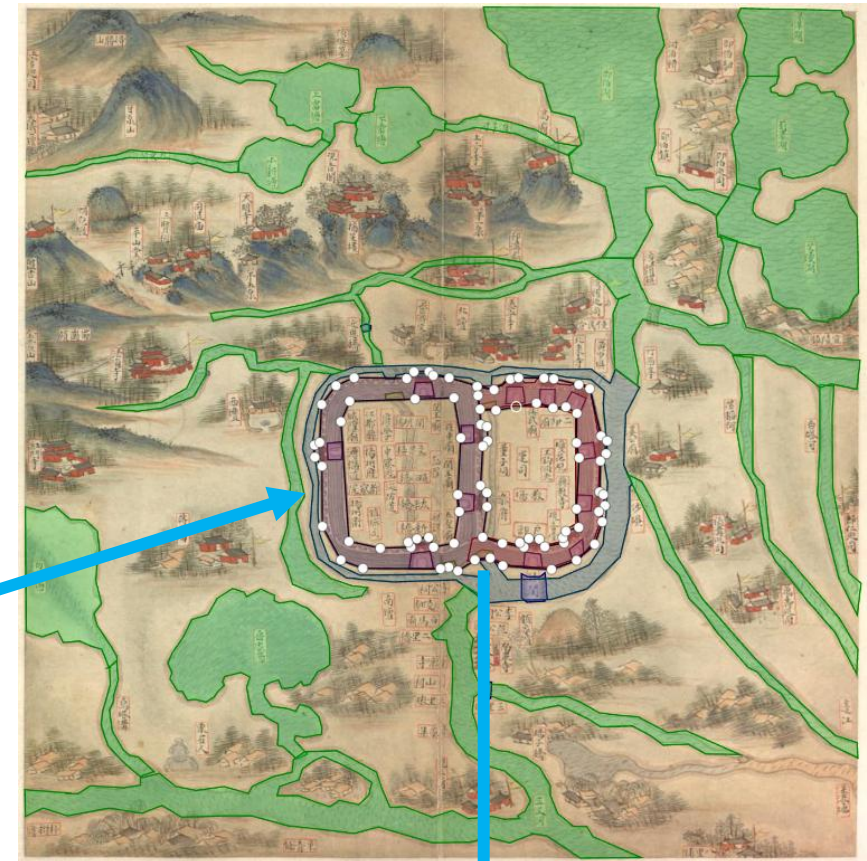
A fortified structure surrounding the center of a civilian administrative unit (府, 州, 縣) to defend its inhabitants and buildings from external threats.

## 2 Properties

road\_presence

wall\_phase

Add Property





- What **details** each entity has (**Property**)



**city\_wall** [Settings] [Delete]

id ⓘ

name ⓘ

descriptor ⓘ

TGAZ ⓘ  [Q TGAZ] [Add value]

DILA\_PL ⓘ  [Q DILA (Place)] [Add value]

texture ⓘ  [Add value]

color ⓘ  [X]

road\_presence ⓘ



- How they **relate** (Relationship)

Relationship Name

crossing

☐ Directed Relation

Enable this option if the relationship is meant to be directional, in the sense that source and target roles are relevant.

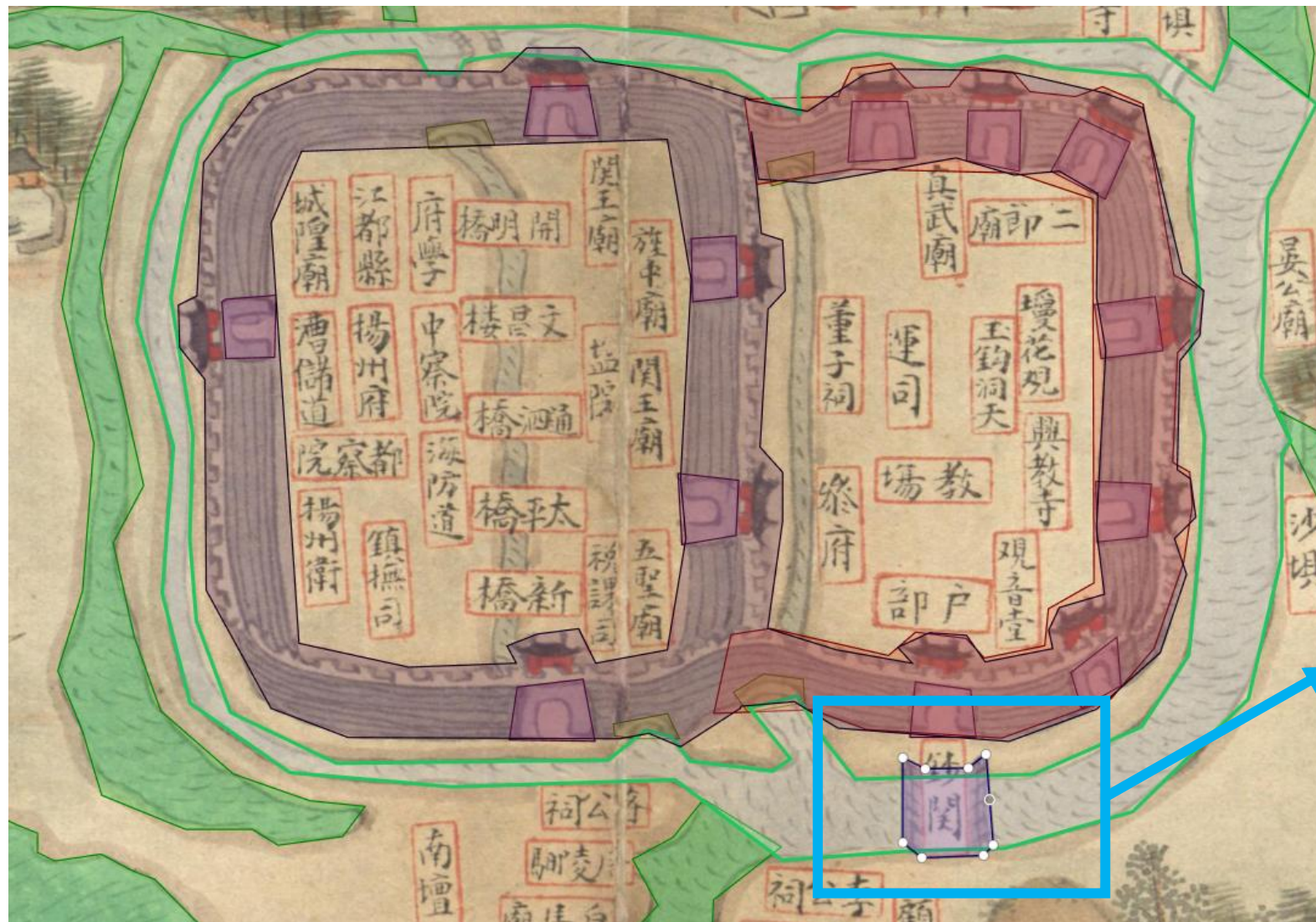
Relationship Type Description

Used to connect a bridge with the feature it crosses such as a river, moat, or road.

☐ Restrict source entity class

The relationship can only start on annotations with this entity class.

bridge



color

#816f59

bridge\_type

floating bridge

relation to wall

extramural

bridge\_pillar\_quant

bridge\_cover

no

Related Annotations

----- crossing -----

Add Tag Add Note

Save

Delete Annotation



A data model defines:

- What **things** you record (**Entity**)
- What **details** each entity has (**Property**)
- How they **relate** (**Relationship**)

Example:

#### **Figure (Mythological or Human)**

- ID
- Name
- Garment\_type
- Garment\_color
- Holding (A **figure** holding an **artifact**)

#### **Landform**

- ID
- Name
- Type
- Location

#### **Infrastructure**

- ID
- Name
- Type
- Dimension\_height
- Dimension\_width
- Crossing (An **infrastructure** crossing another feature)

#### **Artifact**

- ID
- Name
- Type
- Material
- Location\_current
- Inscription\_YN



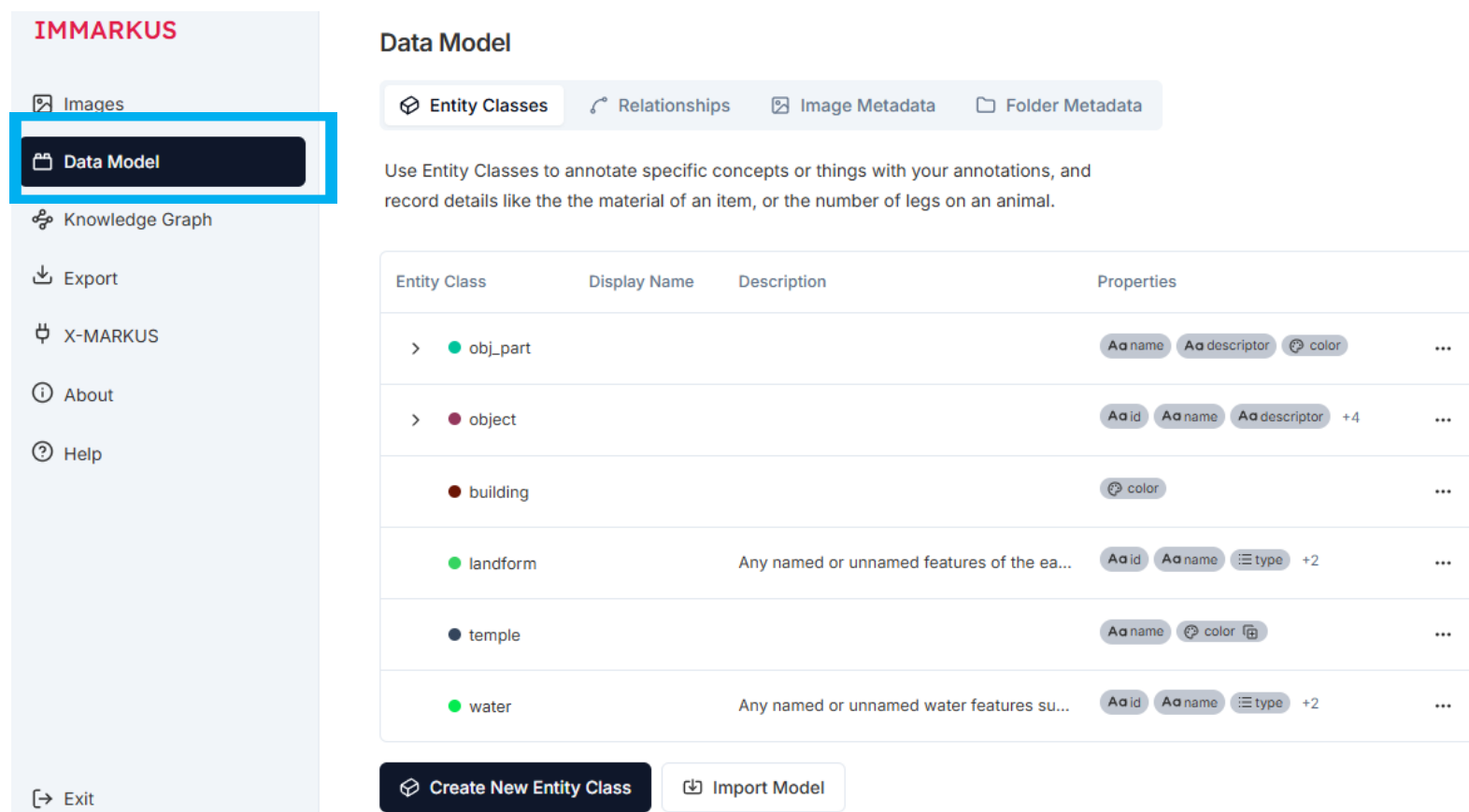
# Why Use a Data Model?

- Ensures consistency across annotations
- Makes annotations searchable and comparable
- Enables complex queries and structured exports

When you annotate, you are already shaping a data model.

To view your current data model:

1. Click on **Data Model** on the left-hand menu bar
2. Navigate what you have created during the annotation practices



**IMMARKUS**

Images

**Data Model**

Knowledge Graph

Export

X-MARKUS

About

Help

Exit

### Data Model

Entity Classes Relationships Image Metadata Folder Metadata

Use Entity Classes to annotate specific concepts or things with your annotations, and record details like the the material of an item, or the number of legs on an animal.

Entity Class	Display Name	Description	Properties
> obj_part			Aa name Aa descriptor color ...
> object			Aa id Aa name Aa descriptor +4 ...
building			color ...
landform		Any named or unnamed features of the ea...	Aa id Aa name type +2 ...
temple			Aa name color ...
water		Any named or unnamed water features su...	Aa id Aa name type +2 ...

Create New Entity Class Import Model



# Data Models in IMMARKUS

Define schema (entity classes, properties, relationships and metadata) directly in **Data Model Mode**

IMMARKUS

Images

**Data Model**

Knowledge Graph

Export

X-MARKUS

About

Help

Data Model

Entity Classes

Relationships

Image Metadata

Folder Metadata

Use Entity Classes to annotate specific concepts or things with your annotations, and record details like the the material of an item, or the number of legs on an animal.

Entity Class	Display Name	Description	Properties
▼ settlement			conectivitylocation to the city...
suburban house			...
farm_house			...
animal_figure			name type...
bridge			...
church			nameURL...



# Data Models in IMMARKUS

Create or expand schema (new entity classes, properties, and relationships) in **Annotation Mode**

The image shows the IMMARKUS interface for creating or expanding a schema. On the left, a 'Create New Entity Class' dialog is open, displaying a search bar and a list of existing entity classes: 'object' (5 children), 'object part' (9 children), 'geographic feature', 'figure', and 'text'. A blue arrow points from the 'Create New Entity Class' button in this dialog to the 'Entity Class' configuration panel on the right.

The 'Entity Class' configuration panel is divided into two main sections. The left section contains fields for 'Entity Class \*' (set to 'gate\_tower'), 'Color' (set to '#9564c8'), 'Display Name' (set to 'gate tower'), 'Parent Class' (set to 'obj\_part'), and 'Entity Class Description'. Below these fields is a section titled 'No Properties' with a description: 'Use Properties to record specific details for an annotated Entity, such as weight, material, age, etc.' and an 'Add Property' button. The right section, titled 'Entity Preview', shows a preview of the data entry form for the 'gate tower' entity, with fields for 'name', 'descriptor', 'color', and 'shape'. A blue box highlights the 'Entity Preview' section.

At the bottom of the 'Entity Class' configuration panel is a 'Save Entity Class' button.



# Data Models in IMMARKUS

## Import / Reuse data model from other projects in **Data Model Mode**

### Data Model

Entity Classes Relationships Image Metadata Folder Metadata

Use Entity Classes to annotate specific concepts or things with your annotations, and record details like the the material of an item, or the number of legs on an animal.

Entity Class	Display Name	Description	Properties
> <span style="color: green;">●</span> figure	figure		<span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa descriptor</span> ...
> <span style="color: brown;">●</span> geo_feature	geo_feature		<span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa name</span> <span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa descriptor</span> ...
> <span style="color: green;">●</span> obj_part	obj_part		<span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa name</span> <span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa descriptor</span> <span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">i≡ color</span> +2 ...
> <span style="color: purple;">●</span> object	object		<span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa id</span> <span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa name</span> <span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa location</span> +4 ...
> <span style="color: green;">●</span> text	text		<span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">Aa descriptor</span> <span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;"># number</span> <span style="background-color: #d3d3d3; border: 1px solid #ccc; padding: 2px;">↪ relation_test</span> ...

Create New Entity Class

Import Model

### Import Entity Classes

#### Replace Current Model

You can either delete and replace your existing model, or add the imported classes to your current model.



#### How to Handle Duplicate Classes

Select how the import should merge classes that already exist in your model.

##### ☒ Keep Existing

If the import contains classes that already exist in your model, keep the existing ones and discard the imported classes.

##### ☐ Keep Imported

If the import contains classes that already exist in your model, discard the existing ones and keep the imported classes.

Upload Datamodel File

Use files downloaded from Export / Data Model.



# Tips

Make use of **parent-child class hierarchies** to avoid duplicating properties for entities that share certain characteristics

The screenshot displays the 'Entity Class' configuration interface. On the left, the 'Entity Class \*' section shows 'city\_gate' as the class name, with a color picker set to '#287561'. Below this, the 'Display Name' is 'City gate'. The 'Parent Class' is set to 'obj\_part', with a green checkmark indicating 'obj\_part is a valid parent'. The 'Entity Class Description' field is empty. At the bottom, there is a 'No Properties' dropdown and a 'Save Entity Class' button. On the right, the 'Entity Preview' section shows a preview of the data entry form. The preview is titled 'City gate' and includes fields for 'name', 'descriptor', 'color', 'pattern', and 'a part of' (with a link to 'object'). Each field has a blue box with a magnifying glass icon next to it. A blue arrow points from the 'Parent Class' field to the 'City gate' title in the preview.

Entity Class \*

city\_gate

Color

#287561

city\_gate is available

Display Name

City gate

Parent Class

obj\_part

obj\_part is a valid parent

Entity Class Description

No Properties

Save Entity Class

Entity Preview

This is how the data entry form for your Entity will appear in the annotation view.

City gate

name

descriptor

color

pattern

a part of object

Add value

Search 'object' tags...

Child classes  
inherit properties  
from parent  
classes





# Tips


---

Make use of **external authorities** to connect your entities to other knowledge bases

Data Type

 External Authority 

- ☐ TGAZ  
China Historical GIS placename database
- ☐ Wikipedia  
The free encyclopedia (English)
- ☐ Baidu  
Baidu encyclopedia
- ☐ CBDB  
China Biographical Database Project
- ☐ DILA (Person)  
Buddhist Studies Authority Database Project (Person Search)
- ☐ DILA (Place)  
Buddhist Studies Authority Database Project (Place Search)
- ☐ Manchu  
Manchu texts and objects
- ☐ Digerati  
Korean personal names
- ☐ Hucker Dictionary  
A Dictionary of Official Titles in Imperial China

 **Select at least one authority**

☐ Allow multiple values



# Practice 4. Adding a Child Class to Your Data Model

---

1. Click **Data Model** on the left-hand menu bar.
2. Click **Create New Entity Class**
3. Type the name of your new entity class
4. Type one of the existing entity class name in the **Parent Class** field

Parent Class

object

🟢 object is a valid parent

5. Click **Save Entity Class**



# Working with Metadata

- The data about your data: **what** something is, **who** made it, **when** and **where** it comes from
- Supports **citations**, **reuse**, and **data linking**

The screenshot displays the IIIF Metadata Editor interface. On the left, a folder view titled "0616\_yangzhou\_map\_IMMARKUS\_revised" shows two folders: "嘉靖\_惟揚志\_92877" (1 Image) and "Yangzhou Fu tu shuo" (26 Canvases). A blue arrow points from the "Yangzhou Fu tu shuo" folder to a detailed metadata form on the right. The form is titled "My" and has a "Schema" dropdown set to "artwork". It contains several fields for metadata entry:

- Image\_title\_ch**: 揚州府圖說
- Image\_title\_py**: Yangzhou Fu tu shuo
- Image\_title\_en**: Illustrated Album of Yangzhou Prefecture
- Image\_author**: anonymous
- CBDB**: (with a search icon and "CBDB" text)
- DILA\_ps**: (with a search icon and "DILA (Person)" text)
- Publication\_place**: (empty field)



# Metadata in IMMARKUS

For IIIF images, the embedded metadata is automatically retrieved and displayed.

The screenshot displays the IMMARKUS web application interface. On the left is a sidebar with navigation links: **IMMARKUS**, **Images** (selected), Data Model, Knowledge Graph, Export, X-MARKUS, About, and Help. The main content area shows a folder titled "Leuven University Hall" containing five IIIF image thumbnails. A context menu is open over the first thumbnail, listing options: Metadata, Manifest Metadata, Open Canvas, Canvas Metadata, Other IIIF Viewers, and Delete. A blue arrow points from the "Manifest Metadata" option to a right-hand sidebar. This sidebar, titled "IIIF", displays the following metadata for the selected image:

- Terms and conditions:** This object is available as open data - [terms and conditions](#)
- Title:** Université de Louvain - Les Halles (façade principale). Vue prise par un temps de neige
- Location:** KU Leuven Libraries Special Collections, TA00503
- Full description:** Includes the "Limo" logo.
- Material type:** Graphic
- Genre:** Topographical pictures

At the bottom left of the sidebar, there is an "Exit" button.



# Metadata in IMMARKUS

You can also edit and save metadata for IIIF resources using your own schema.

IMMARKUS

Images

Data Model

Knowledge Graph

Export

X-MARKUS

About

Help

Exit

Folder

Leuven University Hall

Metadata Import IIIF Hide unannotated Grid

1

2

3

4

5

Universit  de Louvain

La Halle aux Draps

University Hall\_photo.jpeg

Metadata

Open Canvas

Other IIIF Viewers

Delete

Manifest Metadata

Canvas Metadata

{} IIIF

My

title

Universit  de Louvain - Les Halles (fa ade)

date

1896 - End...

topographical details

lithograph(s) line block

additional info

Biographical or historical data: Gezicht op de Universiteitsgebouwen te Leuven

creator

Francois Gailliard

creator\_wikidata

<https://www.wikidata.org/wiki/Q1141144>

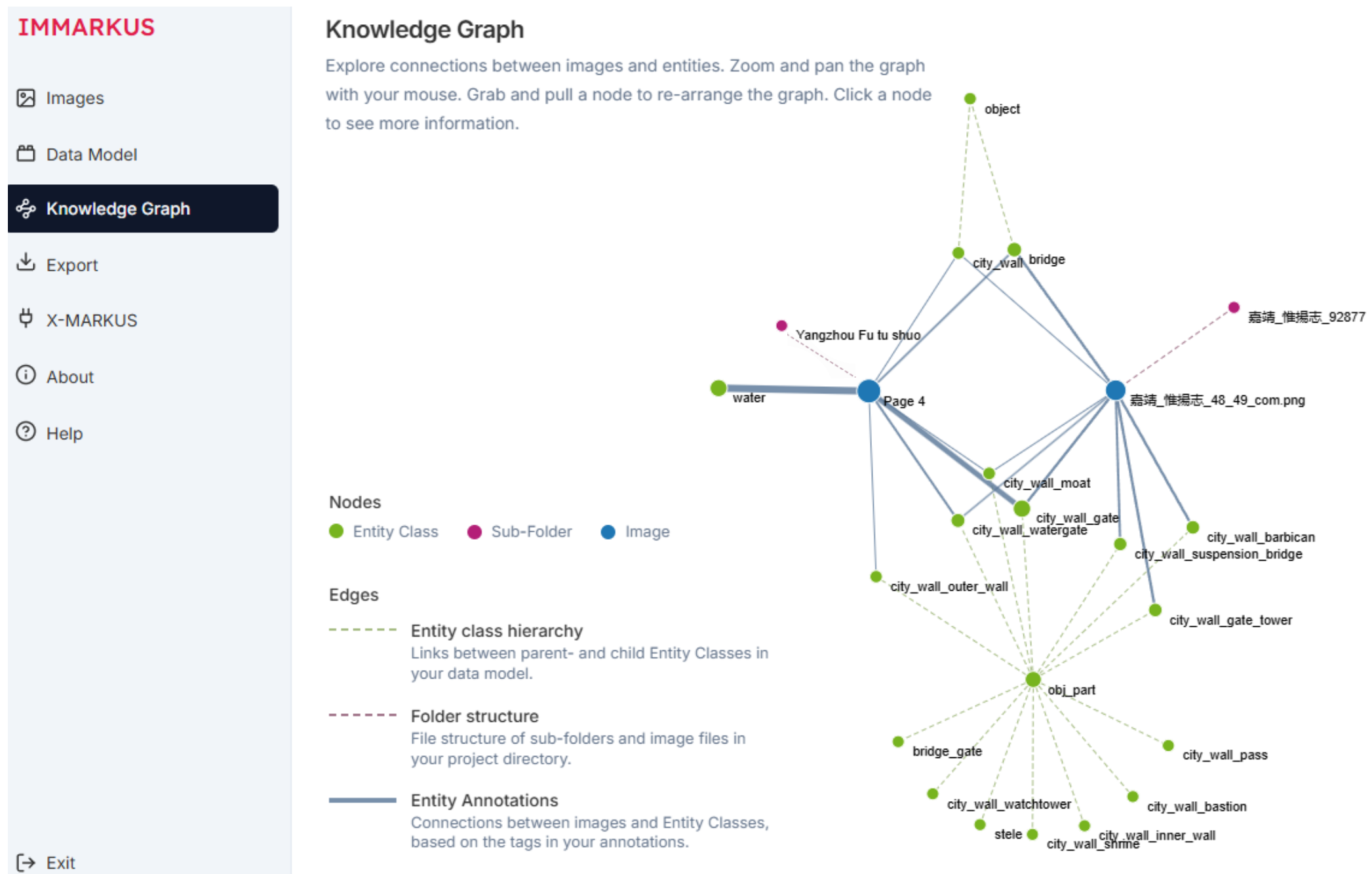






# 4. Visualising and Querying Annotations

Graph view helps reveal patterns and connections across annotations and their sources.





# Hovering over and clicking nodes to view the connections and annotations

**IMMARKUS**

- Images
- Data Model
- Knowledge Graph**
- Export
- X-MARKUS
- About
- Help

[Exit](#)

## Knowledge Graph

Explore connections between images and entities. Zoom and pan the graph with your mouse. Grab and pull a node to re-arrange the graph. Click a node to see more information.

The graph displays two entity classes (green nodes) and five images (blue nodes). The entity class 'facade statue' is connected to the image 'LM00025' and 'University Hall\_photo.jpeg'. The entity class 'hall building' is connected to 'LM00025', 'TA00503', 'TA00500', 'TA00522', and 'University Hall\_photo.jpeg'. The connections are represented by solid blue lines. A legend at the bottom explains the node types and edge types.

**Nodes**

- Entity Class (green dot)
- Image (blue dot)

**Edges**

- Entity class hierarchy (dashed line): Links between parent- and child Entity Classes in your data model.
- Entity Annotations (solid line): Connections between images and Entity Classes, based on the tags in your annotations.

Settings



# Clicking sub-folder nodes ● to view the collection details

IMMARKUS

Images

Data Model

Knowledge Graph

Export

X-MARKUS


About

Help

Exit

Knowledge Graph

Explore connections between images and entities. Zoom and pan the graph with your mouse. Grab and pull a node to re-arrange the graph. Click a node to see more information.



Nodes

Entity Class

Sub-Folder

Image

Edges

Entity class hierarchy

Links between parent- and child Entity Classes in your data model.

Folder structure

File structure of sub-folders and image files in your project directory.

Entity Annotations

Connections between images and Entity Classes, based on the tags in your annotations.

Université de Louvain - Les Halles (f... X

1 Images 

Open

{ } IIIF

My

Terms and conditions

This object is available as open data - [terms and conditions](#)


Title

Université de Louvain - Les Halles (façade principale). Vue prise par un temps de neige

Location

KU Leuven Libraries Special Collections, TA00503

Full description



Material type

Graphic

Genre

Topographical pictures



# Clicking image nodes ● to view the image details

IMMARKUS

Images

Data Model

Knowledge Graph

Export

X-MARKUS

About

Help

Exit

Knowledge Graph

Explore connections between images and entities. Zoom and pan the graph with your mouse. Grab and pull a node to re-arrange the graph. Click a node to see more information.

Nodes

Entity Class

Sub-Folder

Image

Edges

Entity class hierarchy

Folder structure

Entity Annotations

TA00522

facade statue

hall building

TA00522

4.037 x 2.927 px

40

0

Metadata

My

title

L'ancienne halle des drapiers à Louva

date

1800

1900

topographical details

lithograph(s)

additional info

Biographical or historical data: Gezicht

creator

Leopold Mommens

Add value



Clicking image nodes ● to view the image details or the annotated shapes within it

IMMARKUS

Images

Data Model

Knowledge Graph

Export

X-MARKUS

About

Help

Knowledge Graph

Explore connections between images and entities. Zoom and pan the graph with your mouse. Grab and pull a node to re-arrange the graph. Click a node to see more information.

Nodes

Entity Class

Sub-Folder

Image

Edges

Entity class hierarchy

Links between parent- and child Entity Classes in your data model.

Folder structure

File structure of sub-folders and image files in your project directory.

Entity Annotations

Connections between images and Entity Classes, based on the tags in your annotations.

TA00522

4.037 x 2.927 px

4 Annotations

0

hall building

Ancienne Halle des Drapiers · <https://www.wikidata.org/wiki/Q1...>

facade statue

facade statue

facade statue

Exit

Q

Settings



# Clicking entity nodes to view its annotated shapes

IMMARKUS

Images

Data Model

Knowledge Graph

Export

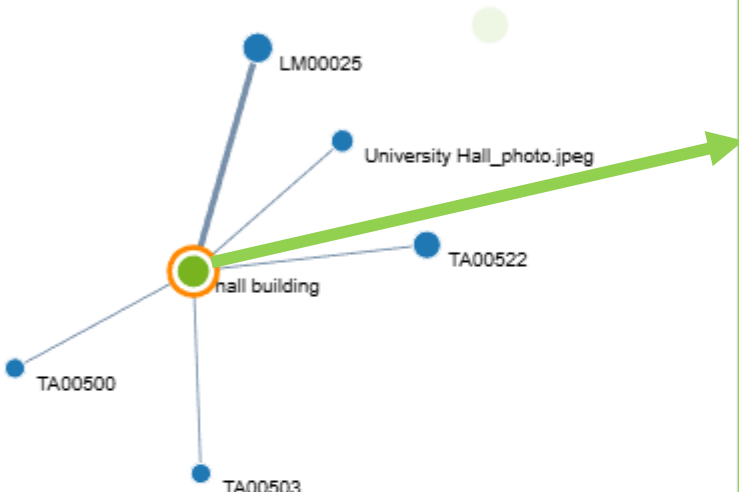
X-MARKUS

About

Help

Knowledge Graph

Explore connections between images and entities. Zoom and pan the graph with your mouse. Grab and pull a node to re-arrange the graph. Click a node to see more information.



Nodes

Entity Class

Sub-Folder

Image

Edges

Entity class hierarchy

Links between parent- and child Entity Classes in your data model.

Folder structure

File structure of sub-folders and image files in your project directory.

Entity Annotations

Connections between images and Entity Classes, based on the tags in your annotations.

Exit


Settings

hall building


No description

6 Annotations


LM00025




La Halle aux Draps -  
<https://www.wikidata.org/wiki/Q1>  
- 1850 - 1900 - elevation




La halle -  
<https://www.wikidata.org/wiki/Q1>  
- 1680 - elevation




Des Halles -  
<https://www.wikidata.org/wiki/Q1>  
- 1700 - 1750 - elevation



Les Halles -  
<https://www.wikidata.org/wiki/Q1>  
- 1896 - facade



Ancienne Halle des Drapiers -  
<https://www.wikidata.org/wiki/Q1>  
- 1800 - 1900 - elevation







University Hall -  
<https://www.wikidata.org/wiki/Q1>  
- 2025 - facade



# Practice 5. Navigating Your Annotations in the Knowledge Graph

---

1. Click **Knowledge Graph** on the left-hand menu bar
2. Hover over an **Entity Node**  to see the entity class hierarchy and its connection with the **Image Node** 
3. Click an **Image Node**  to navigate the annotations associated
4. Click **Settings**, then toggle on **Show sub-folders as nodes**
5. Click a **Sub-Folder Node**  to view the metadata fetched from IIIF manifests







## Knowledge Graph

Explore connections between images and entities. Zoom and pan the graph with your mouse. Grab and pull a node to re-arrange the graph. Click a node to see more information.

Graph Search

✕

Find

images ▾

with entity ▾

bridge ▾

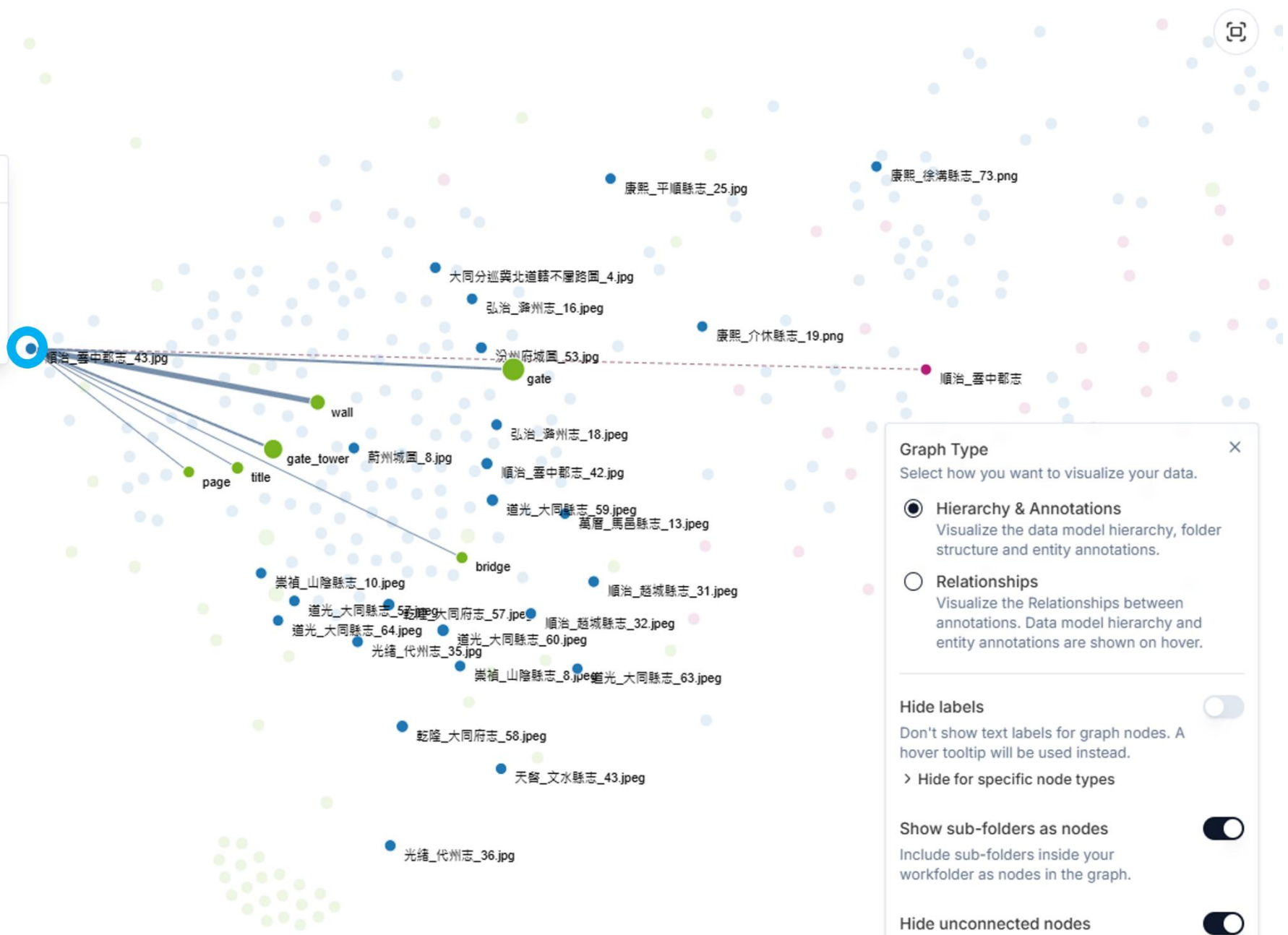
⊕ Sub-Condition

⊕ Add Condition

Clear All

↓

 Export Search Result ▾



Graph Type

×

Select how you want to visualize your data.

☒

**Hierarchy & Annotations**  
Visualize the data model hierarchy, folder structure and entity annotations.

☐

**Relationships**  
Visualize the Relationships between annotations. Data model hierarchy and entity annotations are shown on hover.

Hide labels

☐

Don't show text labels for graph nodes. A hover tooltip will be used instead.

> Hide for specific node types

Show sub-folders as nodes







☐

Include sub-folders inside your workfolder as nodes in the graph.

Hide unconnected nodes

☐

Remove nodes without any connections from the graph.

- ## Nodes
-  Entity Class     Sub-Folder     Image
- ## Edges
-  **Entity class hierarchy**  
Links between parent- and child Entity Classes in your data model.
  -  **Folder structure**  
File structure of sub-folders and image files in your project directory.
  -  **Entity Annotations**  
Connections between images and Entity Classes, based on the tags in your annotations.



# Searching by Relationship

Graph Search

Find

entity classes ▾

with relationship ▾

provides access to ▾

🗑️

⊕ Add Condition

🗑️ Clear All

📄 Export Search Result ▾



## Graph Type

Select how you want to visualize your data.

- ☐ **Hierarchy & Annotations**  
Visualize the data model hierarchy, folder structure and entity annotations.
- ☒ **Relationships**  
Visualize the Relationships between annotations. Data model hierarchy and entity annotations are shown on hover.

## Hide labels

Don't show text labels for graph nodes. A hover tooltip will be used instead.

> Hide for specific node types

## Show sub-folders as nodes

Include sub-folders inside your workfolder as nodes in the graph.

## Hide unconnected nodes

Remove nodes without any connections from the graph.



# Searching by Metadata

Graph Search

Find

where

folder:Place\_cove...

is

大同

+ Add Condition

Clear All

Export Search Result

Graph Type

Select how you want to visualize your data.

☒ Hierarchy & Annotations

Visualize the data model hierarchy, folder structure and entity annotations.

☐ Relationships

Visualize the Relationships between annotations. Data model hierarchy and entity annotations are shown on hover.

Hide labels

Don't show text labels for graph nodes. A hover tooltip will be used instead.

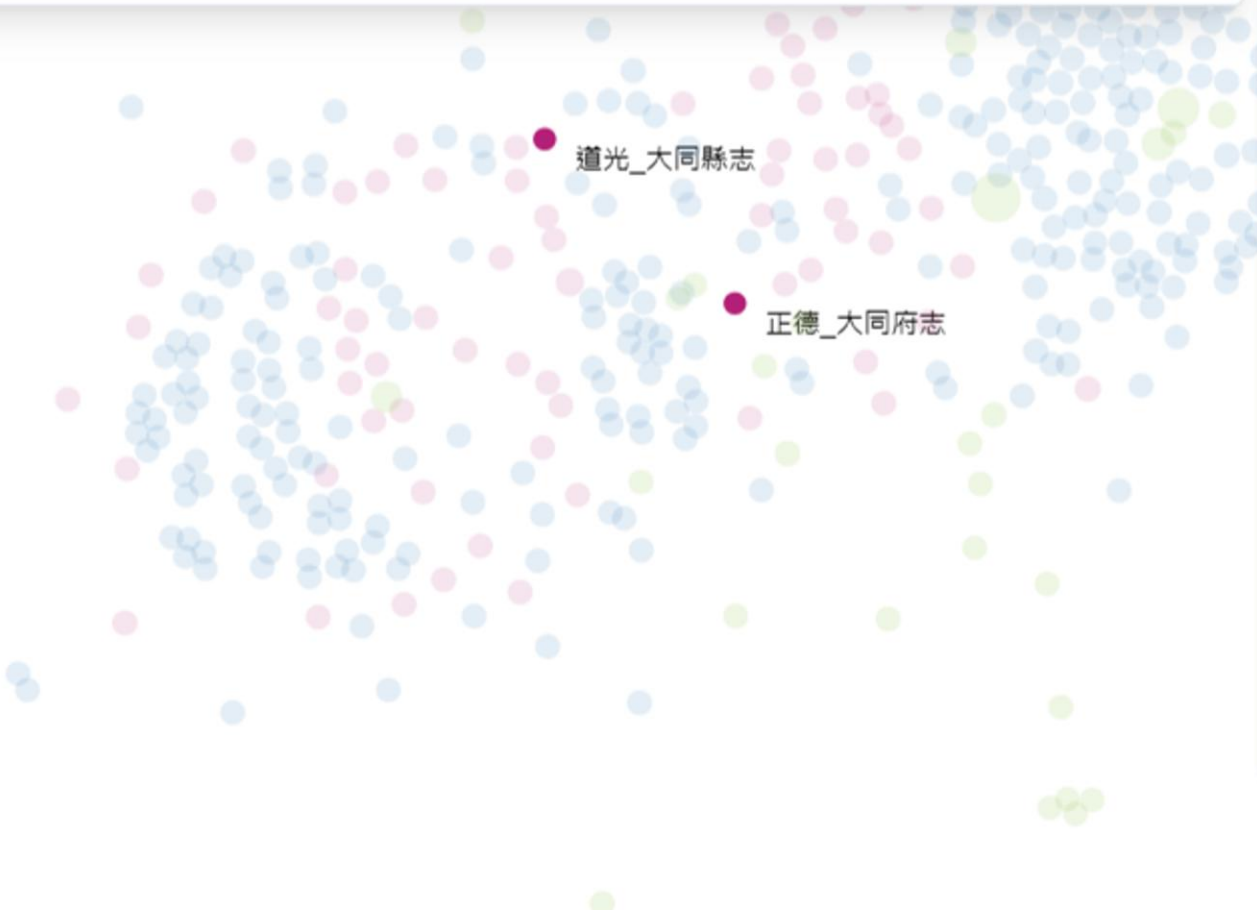
> Hide for specific node types

Show sub-folders as nodes

Include sub-folders inside your workfolder as nodes in the graph.

Hide unconnected nodes

Remove nodes without any connections from the graph.



Settings



# Adding and Managing Conditions

The screenshot shows the IMMARKUS interface with a sidebar on the left and a main 'Graph Search' panel. The sidebar includes links for Images, Data Model, Knowledge Graph (highlighted), Export, X-MARKUS, About, and Help. The Graph Search panel contains a search query builder with the following structure:

- Find:** images
- Condition 1:** with entity bridge (with a trash icon and a '+ Sub-Condition' button)
- Connector:** where
- Condition 2:** relation to wall is extramural (with a trash icon)
- Connector:** and
- Condition 3:** with entity water (with a trash icon and a '+ Sub-Condition' button)
- Connector:** where
- Condition 4:** type is river (with a trash icon)

At the bottom of the search panel are buttons for '+ Add Condition', 'Clear All', and 'Export Search Res'. A decorative cluster of blue and green dots is located at the bottom right of the interface.

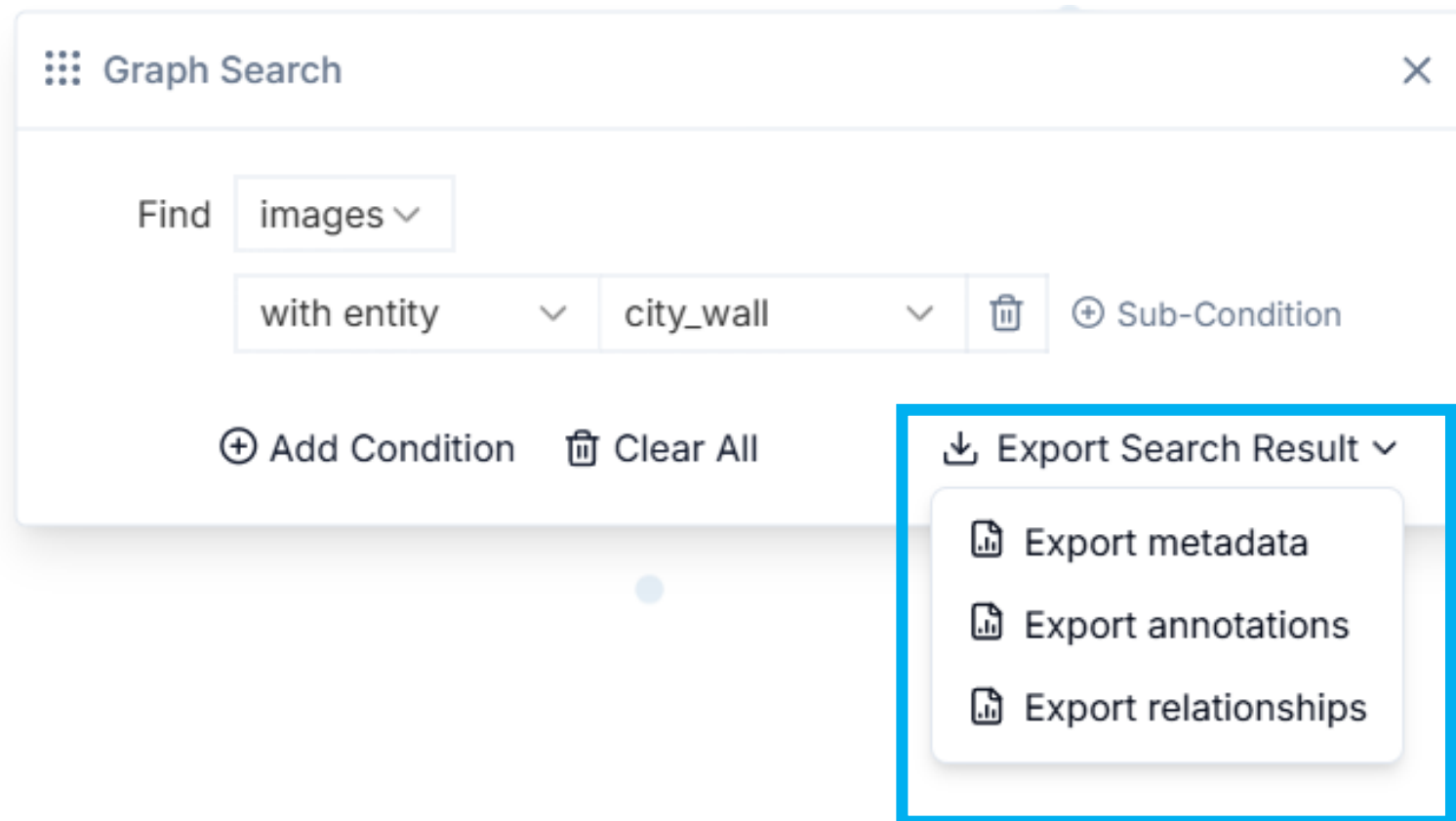
**Callouts:**

- Yellow Callout:** Click + Sub-Condition to filter on properties of an entity class (points to the '+ Sub-Condition' button next to the 'bridge' condition).
- Grey Callout:** Click Dustbin icon to delete (sub)conditions (points to the trash icon next to the 'river' condition).
- Teal Callout:** Click + Add Condition to add and/or condition to your search (points to the '+ Add Condition' button).



# Exporting Graph Search Results

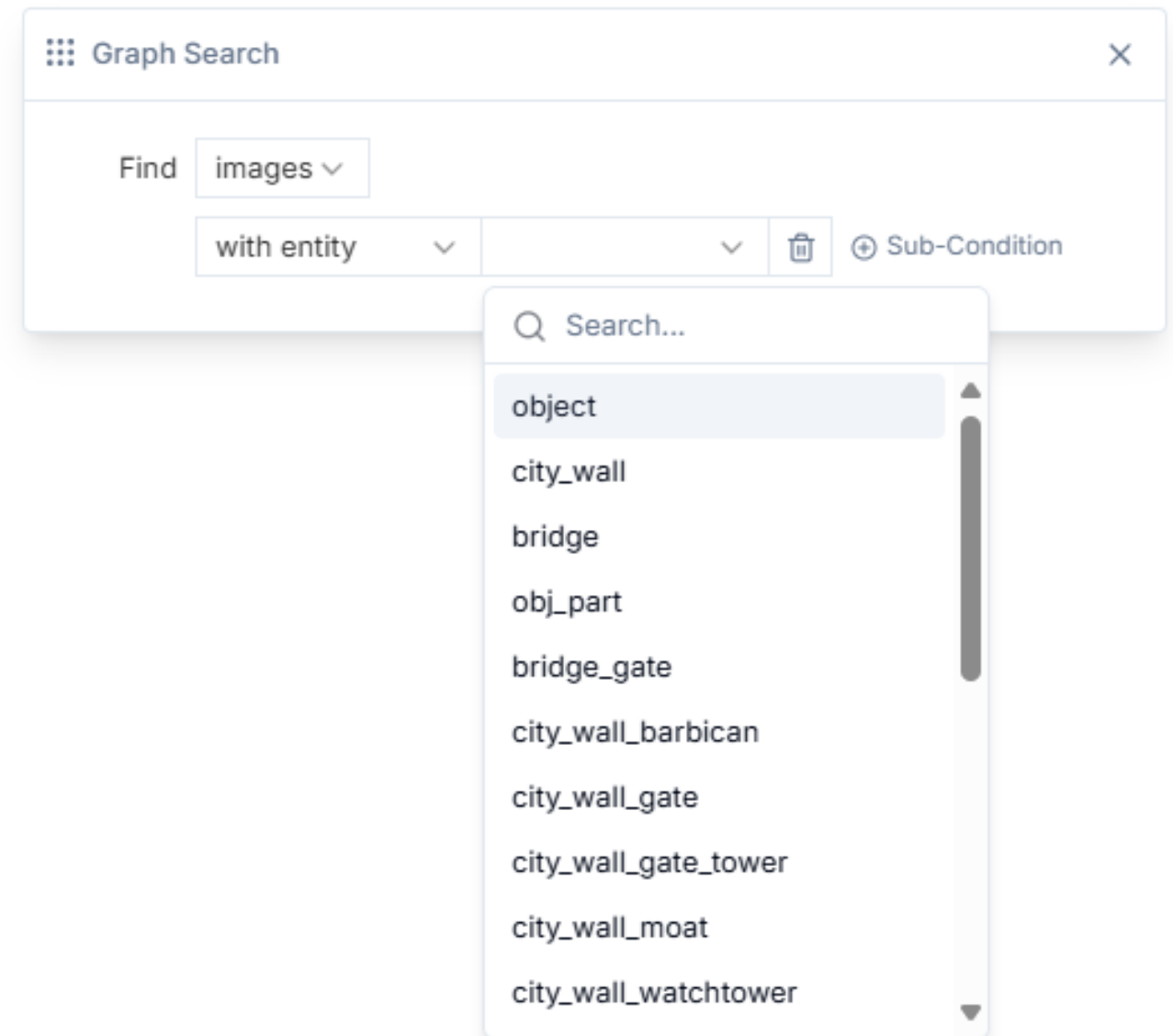
---





# Practice 6. Searching for Images by Entity Tags

1. Click the **Magnifier Icon** 🔍
2. Select **Find images** → **with entity** → **select one [entity]** from the dropdown list
3. The image node that meets the condition will be highlighted in the graph
4. Explore adding a **Sub-Condition** to include more search criteria





- IMMARKUS
- Images
- Data Model
- Knowledge Graph
- Export
- X-MARKUS
- About
- Help
- [→ Exit

Export your data in different export formats.

## Metadata

All annotations, on all images in your current work folder, as a flat list in W3C Web Annotation JSON-LD format.

JSON-LD

All annotations, on all images in your current work folder, as an Excel file. Each top-level Entity Class will appear on a separate worksheet.

Image snippets are included as a spreadsheet column. Choose your preferred format:

- **Bounding box snippets:** rectangular images showing the full area around each annotation.
- **Exact shape snippets:** images clipped precisely to the annotated shape (applies to polygons and ellipses).

❏ Export bounding box snippets ▾

 **XLSX**

[→ Exit



# Exporting Annotations for Further Computation

**IMMARKUS**

- Images
- Data Model
- Knowledge Graph
- Export**
- X-MARKUS
- About
- Help

## Export

Export your data in different export formats.

**Annotations**  
Relationships  
Data Model  
Metadata

### Annotation Data

All annotations, on all images in your current work folder, as a flat list in [W3C Web Annotation JSON-LD](#) format.

JSON-LD

### Annotations and Images

All annotations, on all images in your current work folder, as an Excel file. Each top-level Entity Class will appear on a separate worksheet.

Image snippets are included as a spreadsheet column. Choose your preferred format:

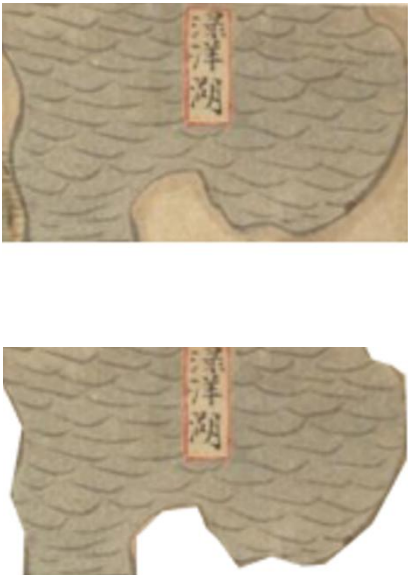
- Bounding box snippets:** rectangular images showing the full area around each annotation.
- Exact shape snippets:** images clipped precisely to the annotated shape (applies to polygons and ellipses).

☐ Export bounding box snippets

☒ Export bounding box snippets

☐ Export exact shape snippets

XLSX

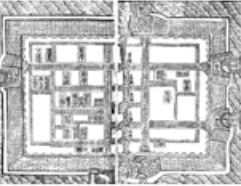







# Exporting Annotations for Further Computation

Snippet column

Annotated Properties

Snippet column					Annotated Properties			
1	Snippet	Image Filename	Folder Name	Annotation ID	Created	Entity Class	id	name descriptor
2		嘉靖_惟揚志_48_49_c0616_yangzhou_map_IMMARMKUS_revised/嘉靖_惟揚		5b9896cd-9b51-4b04-a3c5-5103f8746a8	2025-05-23T10:42:07.021	city_wall	yangzhou_cheng	揚州城
3		嘉靖_惟揚志_48_49_c0616_yangzhou_map_IMMARMKUS_revised/嘉靖_惟揚		c2f5e32e-d7ec-40a0-b962-b64bc0cc00c6	2025-05-23T10:27:14.434	bridge	yangzhou_kaiming_qiao	開明橋
4		嘉靖_惟揚志_48_49_c0616_yangzhou_map_IMMARMKUS_revised/嘉靖_惟揚		7173dbd1-110d-4ae6-8d76-677ce680f0c	2025-05-23T10:27:24.170	bridge	yangzhou_wenjin_qiao	文津橋
5		嘉靖_惟揚志_48_49_c0616_yangzhou_map_IMMARMKUS_revised/嘉靖_惟揚		fd6f5684-0285-4f63-a6a4-50e0b15f8d69	2025-05-23T10:27:38.385	bridge	yangzhou_tongsi_qiao	通泗橋
6		嘉靖_惟揚志_48_49_c0616_yangzhou_map_IMMARMKUS_revised/嘉靖_惟揚		f40efc83-17a7-495c-92ae-682ebc173153	2025-05-23T10:27:46.122	bridge	yangzhou_taiping_qiao	太平橋

object obj\_part water

Entity Classes



# Exporting W3C Web Annotation Format

---

- Annotations have unique IDs
- **target.source** references the filename
- Each entity tag stored as one **W3C Annotation Body**
  - Type: **Dataset**
  - Purpose: **classifying**
  - Source: entity ID in the data model
  - Values stored as serialized key/value pairs
- Comments stored as a **TextualBody**
  - Purpose: **commenting**
  - AI annotations retain model information in **generator** field



# Further Computation Example

X-MARKUS Searching and Filtering

Database: 20251020-Immarkus2D(memory).xml

Search:  GO Reset

Filter: text\_tags Udef\_Align\_OBJECT Size: 2 1 跳至第 頁 Go

2. 惟揚志

↑ ↓

- OBJECT\_MAIN/bridge 2
- OBJ\_PART/city\_wall\_moat 2
- OBJ\_PART/city\_wall\_gate 2
- OBJ\_PART/city\_wall\_watergate 2
- OBJECT\_MAIN/city\_wall 2
- NULL/water 1
- OBJ\_PART/city\_wall\_outer\_wall 1
- NULL/temple 1
- OBJ\_PART/city\_wall\_barbican 1
- OBJ\_PART/city\_wall\_gate\_tower 1
- OBJ\_PART/city\_wall\_suspension\_bridg 1

#Source\_title\_ch: 惟揚志  
#Source\_title\_py: Weiyang zhi  
#Source\_title\_en: Gazetteer of Weiyang (Yangzhou)  
#Source\_author: 朱學鈴、監修  
#CBD8: 131359  
#Publication\_place: 揚州  
#TGAZ\_cr: hvd\_33309  
#Publication\_time: 1542  
#Reprint: No  
#Place\_covered: 揚州  
#TGAZ\_cv: hvd\_33309  
#Genre: gazetteer  
#Type: print  
#Format: woodblock print  
#Data\_source: 中國方志庫二期  
#Language: Chinese

Toggle all pieces on/off

piece 0  
properties/id: yangzhou\_cheng  
properties/name: 揚州城  
properties/TGAZ: hvd\_33309  
properties/texture: bond\_pattern  
properties/road\_presence: intramural

piece 1  
properties/name: 揚州城南門裏城  
properties/direction: south  
properties/texture: bond\_pattern

piece 2  
properties/name: 揚州城南門  
properties/direction: south  
properties/texture: bond\_pattern

piece 3  
properties/name: 揚州城南門樓

piece 4  
properties/name: 揚州城南水門

piece 5  
properties/name: 揚州城北門吊橋  
properties/texture: striped

piece 6  
properties/id: yangzhou\_kaiming\_qiao  
properties/name: 開明橋  
properties/TGAZ: hvd\_33309  
properties/texture: striped  
properties/bridge\_type: arch bridge  
properties/relation.to.wall: intramural  
properties/bridge\_cover: no

piece 7



IMMARKUS annotations  
parsed in X-MARKUS  
<https://xmarkus.xmarkus.org/>

X-MARKUS Searching and Filtering

Database: 20260127-Converting(memory).xml

Search:  GO Reset

Filter: event\_tree \*EVENT Size: 3 SortBy: Document ID 1 跳至第 頁 Go

EXPANSION

3. 揚州府志：揚州新城記

#piece\_title: 揚州新城記  
#piece\_author: 何城(202783)  
#piece\_time: 丁巳夏(公元1557年,明世宗)  
#place\_covered: 揚州(hvd\_33309)  
#source\_title: 揚州府志  
#source\_author: 阿克當阿(81032)  
#publication\_place: 揚州(hvd\_33309)  
#publication\_time: 1810  
#Compilation: -

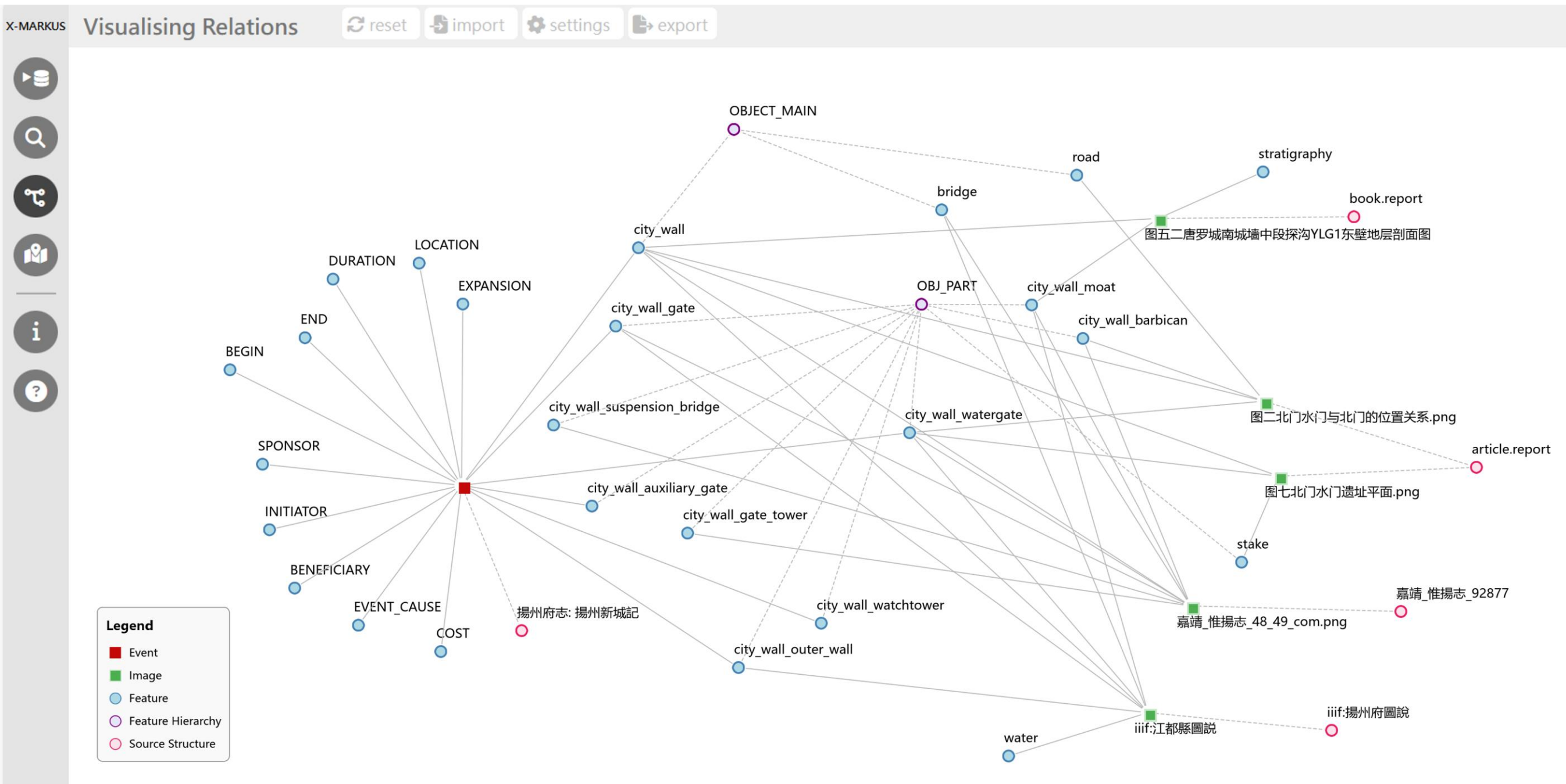
highlight with event id  
EVENT\_SOURCE\_TEXT  
- 揚州府志：揚州新城記  
TIME  
..BEGIN/1556-03/丙辰之二月  
..END/1556-11/十一月  
..duration/9月/九個月  
EVENT  
..EXPANSION/build/軍  
OBJECT\_MAIN  
► X-MARKUS Feature: [Udef\_Align\_OBJECT] OBJECT\_MAIN/city\_wall  
..wall/yangzhou\_cheng/揚州府城  
LOCATION  
..placeName/hvd\_33309/揚  
COST  
..cost/46157兩/銀四萬六千一百五十七兩  
INITIATOR  
..officialTitle/provincial\_graduate/舉人  
..fullName/409577/楊守誠  
..officialTitle/prefect/縣令  
..fullName/125187/吳公自湖  
SPONSOR  
..officialTitle/grand\_coordinator/撫院  
..fullName/131016/孫山陳公  
..officialTitle/regional\_inspector/按察  
..fullName/124375/戴山崇公  
..officialTitle/salt\_office/鹽院  
..fullName/204032/春洲崔公  
..soccatsalt\_merchant/商賈  
..officialTitle/recorder/經歷  
..fullName/203204/張謙見  
..officialTitle/assistant\_magistrate/主簿  
..fullName/1556/江都/楊長壽  
..officialTitle/assistant\_magistrate/主簿  
..fullName/335605/董和教  
..officialTitle/clerk/知事

嘉慶 揚州府志 卷十五 城池 何城 揚州新城記  
揚州府城 fobject yangzhou\_cheng  
何城 PersonName:cbdb\_202783 揚州新城記 \*work:-  
揚州 外城 fobj\_partouter\_wall 成言言几屹樓堞蔽虧囊括萬家襟帶漕河以為固甚盛舉也先是倭寇 \*action\_cause:- 弗靖騷動東南 郡守 Office:prefect 吳公自湖 PersonName:cbdb\_125187 用不敏議請 揚 LocName:- 介 LocName:- 兩郡之間四方舟車商賈 \*soccatsmerchant 之所萃生齒聚繁數倍於昔又通司 Office:tax\_transport\_bureau 餘鹽獨獨當天下賦稅之半而商人 \*soccatsmerchant 實居舊城之外無藩籬之限非捍衛計也 置 \*action:build 外城 \*obj\_partouter\_wall 便時 舉人 Office:provincial\_graduate 楊守誠 PersonName:cbdb\_409577 力贊其說遂請於撫院 Office:grand\_coordinator 孫山陳公 PersonName:cbdb\_131016 按院 Office:regional\_inspector 戴山崇公 PersonName:cbdb\_124375 鹽院 Office:salt\_office 春洲崔公 PersonName:cbdb\_204032 並下 自湖 PersonName:cbdb\_125187 計凡城丈合工與財當費銀二十九兩有奇 \*cost:c29兩 道計 銀四萬六千一百五十七兩 \*cost:46157兩 括府藏止一萬六千兩有奇 \*cost:c16000兩 春洲公 PersonName:cbdb\_204032 許借 商鹽 \*soccatsalt\_merchant 銀三萬 \*cost:30000兩 兩足其費議始定 孫山 PersonName:cbdb\_131016 諸公並奏下工部 Office:ministry\_of\_work 覆奏詔悉如請是為乙卯之冬 Date:公元1555年,明世宗 適吳公 PersonName:cbdb\_125187 有清源之命 廟堂 Office:court 議以 毅庵石公 PersonName:cbdb\_127006 代初議城因 淤河 \*action\_cause:silted\_river 而淤河之地積為 居民 \*soccatsresident 之所占焉動浮言以惑有位議者恒以羣民業難其事公始至即召外城之商 \*soccatsmerchant 民 \*soccatspeople 而諭之曰淤河之地積往課則官地也是豈汝得而廬舍者耶今為城蓋悉歸於官永建乃

Related event annotations  
parsed in X-MARKUS



# Knowledge Graph Showing Entity Connections across Text and Image Corpora





# Practice 7. Exporting Your Annotations as an Excel File

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1. Click **Export** on the left-hand menu bar
2. Select your preferred snippet type, then click **XLSX**
3. Open the downloaded Excel file to view your annotations



# Exporting Data Models for Reuse

## Export

Export your data in different export formats.

Annotations

Relationships

Data Model

Metadata

### Entity Classes

Your Entity Class model, in proprietary IMMARKUS JSON Format.

JSON

### Relationship Types

Your Relationship Type model, in proprietary IMMARKUS JSON Format.

JSON

### Image Metadata Schemas

Your Image Metadata schemas, in proprietary IMMARKUS JSON Format.

JSON

### Folder Metadata Schemas

Your Folder Metadata schemas, in proprietary IMMARKUS JSON Format.

JSON

### Full IMMARKUS Data Model

All of the above - Entity Classes, Relationship Types, Image and Folder metadata schemas. This export is the same file you will find in your work folder as `_immarkus.model.json`. It is re-published here for convenience.

JSON

```
1  [
2    {
3      "color": "#94375c",
4      "id": "object",
5      "properties": [
6        {
7          "name": "id",
8          "type": "text",
9          "description": "use pinyin"
10         },
11        {
12          "name": "name",
13          "type": "text",
14          "description": "use Chinese characters"
15         },
16        {
17          "name": "descriptor",
18          "type": "text",
19          "description": "Transcribe Chinese text annotations related to t
20         },
21        {
22          "name": "TGAZ",
23          "type": "external_authority",
24          "authorities": [
25            "TGAZ"
26          ],
27          "description": "Use the id at the relevant time."
28        },
29        {
30          "name": "DILA_PL",
31          "type": "external_authority",
32          "authorities": [
33            "DILA (Place)"
34          ],
35          "description": "Use id if TGAZ id is not available. Use the one
36        },
37        {
38          "name": "texture",
39          "type": "enum",
40          "multiple": true,
41          "values": [
42            "angle_bracket",
43            "bond_pattern",
44            "flagstone_layout",
45            "solid_black",
46            "striped",
47            "unadorned"
```



# Exporting Data Models for Reuse

## Data Model

Entity Classes

Relationships

Image Metadata

Folder Metadata

Use Entity Classes to annotate specific concepts or things with your annotations, and record details like the the material of an item, or the number of legs on an animal.

Entity Class	Display Name	Description	Properties
> <span>●</span> figure	figure		<span>Aa</span> descriptor ...
> <span>●</span> geo_feature	geo_feature		<span>Aa</span> name <span>Aa</span> descriptor ...
> <span>●</span> obj_part	obj_part		<span>Aa</span> name <span>Aa</span> descriptor <span>i≡</span> color +2 ...
> <span>●</span> object	object		<span>Aa</span> id <span>Aa</span> name <span>Aa</span> location +4 ...
> <span>●</span> text	text		<span>Aa</span> descriptor <span>#</span> number <span>↶</span> relation_test ...

Create New Entity Class

Import Model

Import Entity Classes

Replace Current Model

You can either delete and replace your existing model, or add the imported classes to your current model.

How to Handle Duplicate Classes

Select how the import should merge classes that already exist in your model.

☒ Keep Existing

If the import contains classes that already exist in your model, keep the existing ones and discard the imported classes.

☐ Keep Imported

If the import contains classes that already exist in your model, discard the existing ones and keep the imported classes.

Upload Datamodel File

Use files downloaded from Export / Data Model.



# With thanks to



- Hilde De Weerd, Lee Sunkyu, Iva Stojević, Xi Wangzhi, Dawn Zhuang, Meret Meister, Wang Ran, Pascal van der Bij (KU Leuven)
- Brent/Hou leong Ho (Staatsbibliothek zu Berlin)
- Rainer Simon
- Bol, Peter K., Michael Fuller, et al. China Biographical Database Project (CBDB) (2004–). <http://isites.harvard.edu/icb/icb.do?keyword=k16229&pageid=icb.page12970>
- ———, Lex Berman, et al. China Historical GIS (2001–). <http://www.fas.harvard.edu/~chgis/>
- ———, Center for Historical Geography at Fudan University, ACASIAN at Griffith University, et al. Hartwell China History Project GIS (1992–2001). <http://www.fas.harvard.edu/~chgis/>
- Tu Hsieh-Chang, Hsiang Jieh, Lin Nungyao et al. National Taiwan University.



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