



# OpenAtlas

A Database System for the Humanities and  
Beyond

September 19th, 2023 - Bernhard Koschiček-Krombholz



# Bernhard Koschiček-Krombholz

- Studied
  - Computer Science at Applied University Technikum Vienna
  - History at University of Vienna
- First contact with OpenAtlas
  - “Digitising Pattern of Power” in 2015
  - Since 2019 developer at ACDH-CH through “THANADOS”
- Responsibilities
  - API
  - Backend development
  - Server administration



# THANADOS



# OpenAtlas

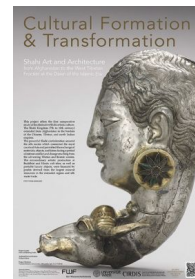
- Project website: <https://openatlas.eu>
- Initiated about 10 years ago by Stefan Eichert
- Mainly developed at the ACDH-CH
- Open source, browser based database software
- Acquire, edit and manage research data



# OpenAtlas Collaborations

- With projects from all fields of the humanities
- Mostly historical, archaeological and CH projects
- A lot of synergies between the projects

## THANADOS





# Mission Statement

- Open source - open access



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- Open source - open access
- Transparent workflow and communication
- High-quality data integrity and coding standards
- Usability
- Interoperable through
  - CIDOC CRM
  - API
  - FAIR principles
  - External references

# Features

- Spatial, object, actor and event centred

# Features

- Spatial, Actor and Event centred
- Fully customizable type and reference system

Standard types Custom types Place types Value types System types

- Actor function
- Actor relation
- Artifact
- Bibliography
- Edition
- Event

Type to search  + Type

**Building activity 8**

- Change of Property 5 (446)
  - Donation 446
  - Exchange 0
  - Sale 0
- Confirmation of Property 181
- Conflict 6
- Consecration of a church 0
- Extreme event 0
- Gathering 0
- Mentioned 84 (76)
- Movement of people or goods 1 (10)
- Photography 1
- Recognition of Title 0
- Wedding 0

Selection: single  
Required: false (make required)  
Classes: Acquisition, Activity, Creation, Event, Modification, Move, Production  
Untyped entities: [show](#)

Description  
Categories for the type of events like Change of property, Conflict, Movement, Attendance etc.

Event Type	Count
Change of Property	446
Mentioned	76
Building activity	10
Photography	1
Extreme event	0
Recognition of Title	0

## Dimensions

 Type to search   

### Azimuth 0

Degrees 2,700

#### ◀ Diameter 2,735 (983)

Bottom diameter 317

Max Diameter 321

Min Diameter 85

Top Diameter 260

#### ▶ Distance 0

Elevation 801

#### ◀ Height 6,336 (150)

Height max 75

Height min 75

#### ◀ Length 8,756 (356)

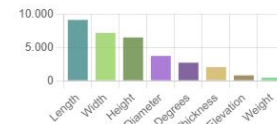
Classes: Artifact, Feature, Place, Stratigraphic unit

 Multiple linked entities: [show](#)

 Untyped entities: [show](#)

### Description

Physical dimensions like weight and height.




 Show  entries

 Search: 

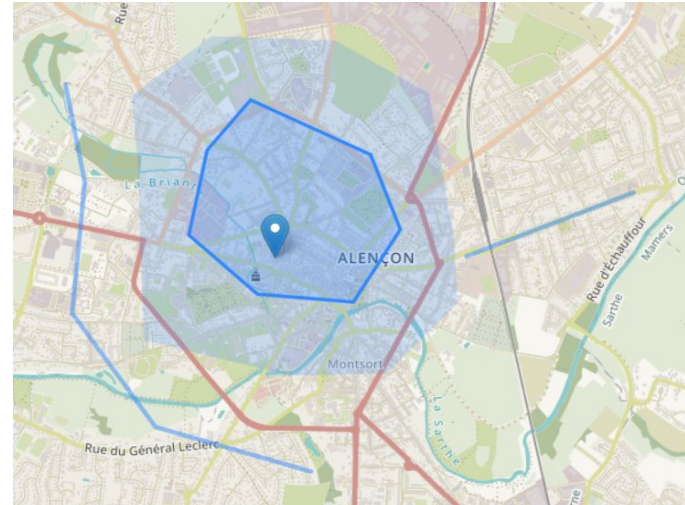
Name	Count	Website URL	Resolver URL	Example ID	Default precision	Description
<a href="#">AMA number</a>	2424				exact match	Fortlaufende ...
<a href="#">Archaeologi...</a>			<a href="https://digiar...">https://digiar...</a>	C-TX-20220...	exact match	
<a href="#">ArchWort</a>	4	<a href="https://archw...">https://archw...</a>	<a href="https://archw...">https://archw...</a>	2873	exact match	
<a href="#">English Tra...</a>	83			english name	exact match	EN
<a href="#">GeoNames</a>	798	<a href="https://www....">https://www....</a>	<a href="https://www....">https://www....</a>	1234567	close match	Geographical...
<a href="#">German Tra...</a>	85			Name auf De...	exact match	DE
<a href="#">Getty AAT</a>	327	<a href="http://vocab....">http://vocab....</a>	<a href="http://vocab....">http://vocab....</a>	300400650	exact match	The Getty Re...
<a href="#">GND</a>	4	<a href="https://gnd.n...">https://gnd.n...</a>	<a href="https://d-nb.i...">https://d-nb.i...</a>	119338467	exact match	
<a href="#">NHMW Prae...</a>	425			1234	exact match	Inventory Nu...
<a href="#">PeriodO</a>	38	<a href="https://perio...">https://perio...</a>	<a href="http://n2t.net/...">http://n2t.net/...</a>	p0qbh66drd9	exact match	

Showing 1 to 10 of 12 entries

# Features

- Spatial, Actor and Event centred
- Fully customizable type system
- Uncertainty in space and time

Begin	1011	01	01	comment
	1020	12	31	
End	1425	08	01	destruction
	1425	10	31	



# Features

- Spatial, Actor and Event centred
- Fully customizable type system
- Uncertainty in space and time
- Archaeological features
  - subunits
  - radiocarbon dating
  - sex estimation

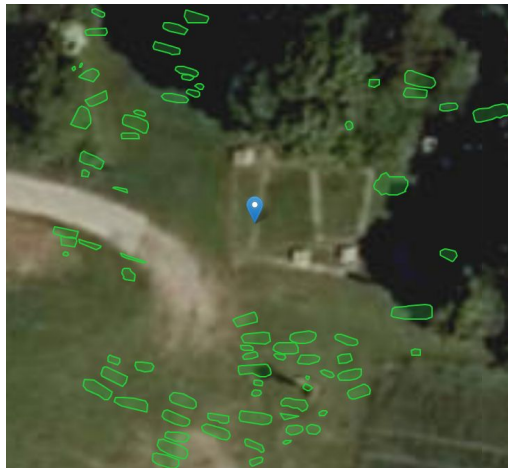
Radiocarbon dating

Laboratory ID \*

Specimen ID \*

Radiocarbon year \*

Range \*



Sex estimation

**Skull**

Glabella	3	Not preserved
Arcus superciliaris	2	Not preserved
Tuber frontalis and parietalis	2	Not preserved
Inclinatio frontalis	1	Not preserved
Processus mastoideus	3	Not preserved
Relief of planum nuchale	3	Not preserved
Protuberantia occipitalis externa	2	Not preserved
Processus zygomaticus	3	Not preserved
Os zygomaticum	2	Not preserved
Crista supramastoideum	2	Not preserved
Margo supraorbitalis	1	Not preserved
Shape of orbita	1	Not preserved

**Mandible**

Overall appearance	3	Not preserved
Mentum	2	Not preserved
Angulus	1	Not preserved

# Features

- Spatial, Actor and Event centred
- Fully customizable type system
- Solutions for uncertainty in space and time
- Archaeological features
  - subunits
  - radiocarbon dating
  - sex estimation
- Extensive (up-to-date) [user manual](#)

OpenAtlas

7.15.0

Search docs

**USER INTERFACE**

- Features
- Overview
- Entity
- Tools
- Admin

**DOCUMENTATION**

- Model
- API
- Database Structure
- Application Structure

**HELP**

- Examples
- Troubleshooting
- FAQ

# Features

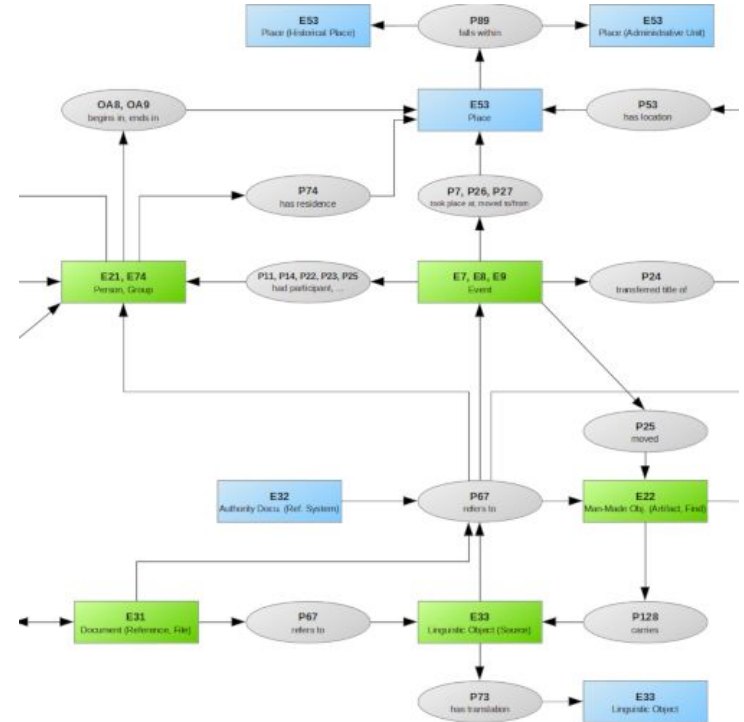
- Spatial, Actor and Event centred
- Fully customizable type system
- Solutions for uncertainty in space and time
- Archaeological features
  - subunits
  - radiocarbon dating
  - sex estimation
- Extensive (up-to-date) [user manual](#)
- User management

	Admin	Manager	Editor	Contributor	Readonly	Guest
Browse data	yes	yes	yes	yes	yes	
Edit data	yes	yes	yes	yes*		
Edit types	yes	yes	yes			
Add custom types	yes	yes				
Add reference systems	yes	yes				
Import/Export	yes	yes				
User management	yes	yes				
System settings	yes					



# Model - CIDOC Conceptual Reference Model

- International standard (ISO)
- Developed by CIDOC CRM Special Interest Group
- Specifies classes for entities like actor, source, event, place and rules how to link them







# Structuring data

## Why?

- (complex) Search
- Compare
- Merge
- Ask research questions

## How?

- Identify and classify entities
- Add attributes
- Link entities to create a network
- Balance simplification and data loss

# CIDOC CRM example

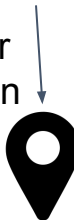


**E18 Mes Aynak**



**E18** Mes Aynak

**P53** current or  
former location



**E53** Location

**E55 Type**

- Settlement
- Collection
- Kingdom
- ...

P2 has type



**E18 Mes Aynak**

P53 current or former location



**E53 Location**



### E22 Artifact



Buddha



Bowl



Coin

P46 composed of



E18 Mes Aynak

P2 has type



### E55 Type

- Settlement
- Collection
- Excavation
- ...

P53 current or former location



E53 Location



### E18 Feature

#### E22 Artifact



Buddha



Bowl

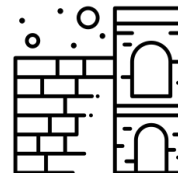


Coin

P46 composed of



Monastery



Walls

P2 has type



E18 Mes Aynak



#### E55 Type

- Settlement
- Collection
- Excavation
- ...

P53 current or former location



E53 Location



E18 Feature

E22 Artifact



Buddha



Bowl

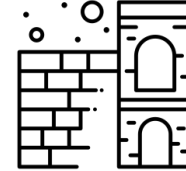


Coin

P46 composed of



Monastery



Walls

P2 has type



E18 Mes Aynak

P67 refers to



E31 References



E55 Type

- Settlement
- Collection
- Excavation
- ...

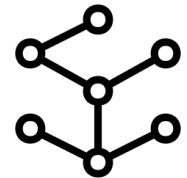
P53 current or former location



E53 Location



E31 Image files



E32 Authority Document





# Conclusion of OpenAtlas

- OpenAtlas is open source and completely based on open source software
- Data is structured according to the international standard of CIDOC CRM (v7.1.2)
- Actively developed with high quality standards in mind
- Emphasis on documentation and close contact with users
  - [User manual](#)
  - [Technical wiki and issue tracker](#)
  - [Public meeting protocols](#)
- API to connect with external systems
- Great synergies between projects using OpenAtlas
- Tested and proven in many productive systems and projects



Thank you!

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