Digital Cultural Heritage Thematic Services of the Open Call

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Digital Cultural Heritage

Needs

- Online services and access to repositories to enable studies of the cultural heritage assets in the region (e.g., searchable digital libraries; with support of meta-data and OCR for Latin characters).

- Online visualization tools (e.g., interactive visualization viewers of 3D digital assets with metadata integration, remote sensing datasets, agent-based model simulations).

- Training material and Tools for the creation of interactive and immersive environments to support the GLAM industry (galleries, libraries, archives and museums) with limited resources to generate virtual exhibitions of their collections of artefacts.

- Instructions and Tools for the creation of 3D digital assets (Structure from Motion – reconstruction of a textured 3D object from a series of photographs of the object).

Introduction to Clowder4DCH

Platform as a service aimed at researchers and educators

What is Clowder4DCH?

- The content management system for the Cultural Heritage communities of the Horizon 2020 funded NI4OS project (https://ni4os.eu/).

- Is a highly extensible active curation-based research data management platform.

- Target Users: GLAM industry (galleries, libraries, archives and museums) and Education

- Access Mode: Open, with user password authentication.

Purpose of C4DCH

The essential aim of C4DCH is to support Cultural Heritage communities in three different areas:

- Online services and access to repositories

- Online visualization tools to drive breakthrough contributions to heritage enquiries

- Training material and Tools to support the GLAM industry

The main characteristics of C4DCH platform are:

o Variety of Supported Data Types
o Flexible Metadata Representation
o Automatic Metadata Extraction
o Data Visualizations

Variety of Supported Data Types

C4DCH supports any type of data

- 3D Models (.ply, .nxs, .fbx)
- Image, text and sound files and their metadata
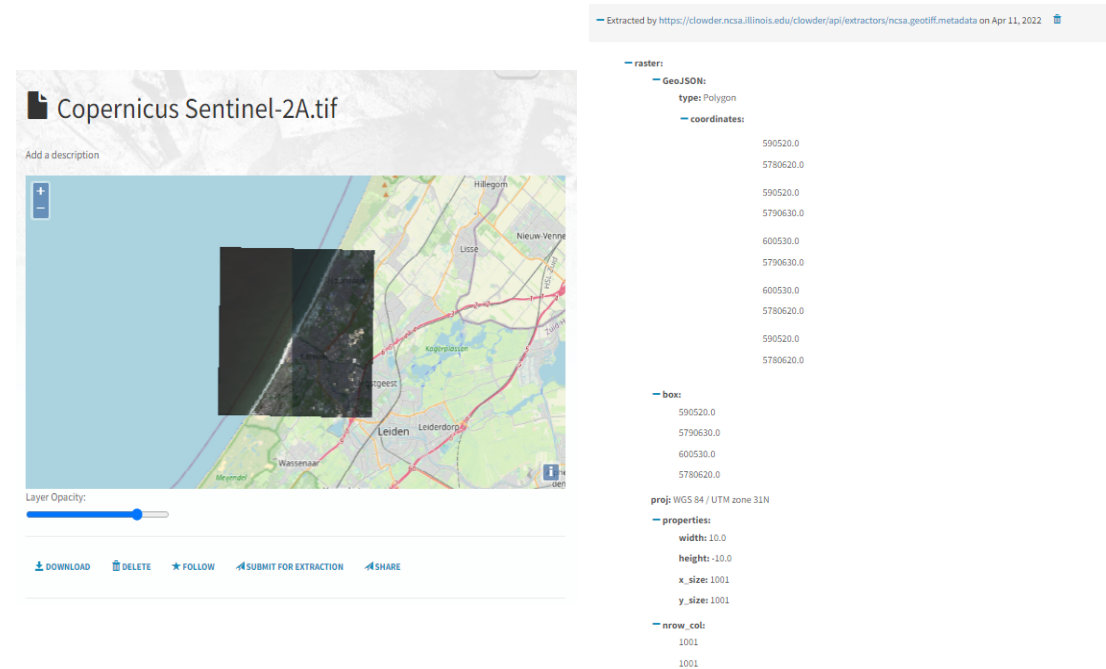- Scanned books and their metadata
- Geospatial Data (Shapefiles, GeoTiffs)

Flexible Metadata Representation

Two types of metadata:

- Required metadata, such as time of creation, author, license, etc.

- Optional generic metadata. The optional metadata can be produced by users and extractors.

Automatic Metadata Extraction

When new data is added to the system, whether it is via the web front-end or through its Web service API, a cluster of extraction services process the data to extract interesting metadata and create web based data visualizations.
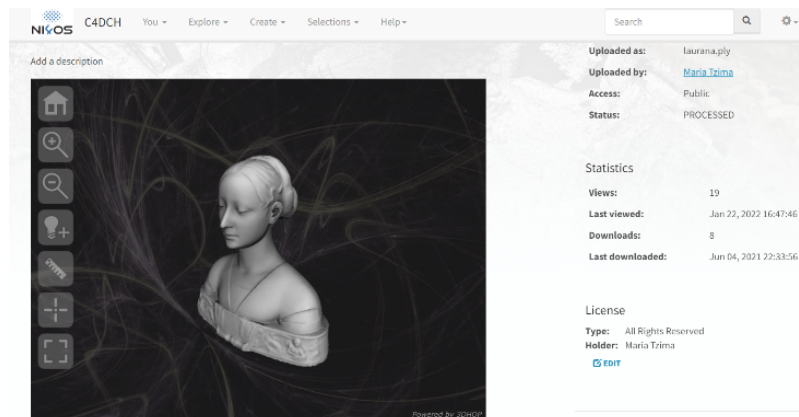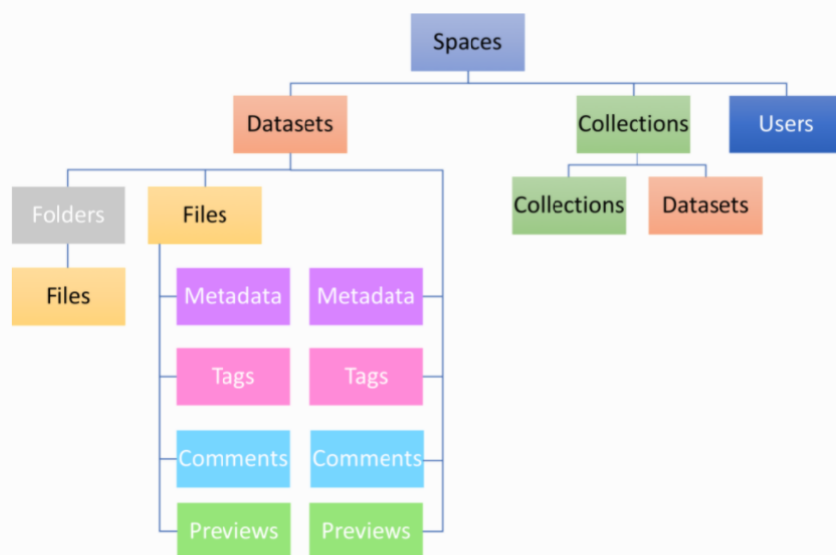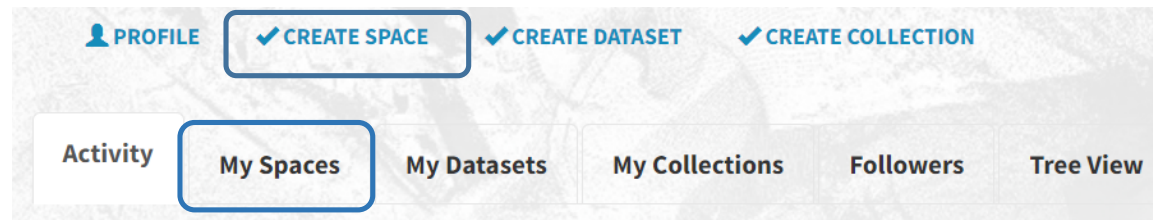
Data Visualizations

C4DCH provides tools that are used to preview the content of large files and visualize the information contained in files and datasets in a meaningful way.

Data Model

C4DCH helps manage data by organizing files and metadata in *folders*, *datasets*, *collection*s and *spaces*.

Data Model - Spaces

Spaces enforce access control and allow administrators of a space to share datasets and collections with specific users using role-based access control.

Data Model - Collections
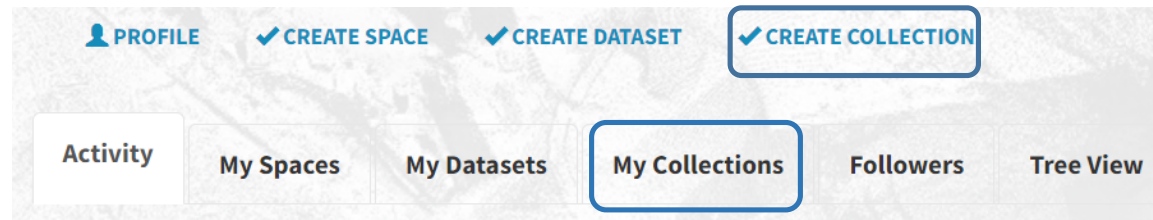
Collections of datasets can only contain datasets and nested collection but have no generic metadata associated with them.

Collections provide ways of organizing datasets.

Data Model - Datasets
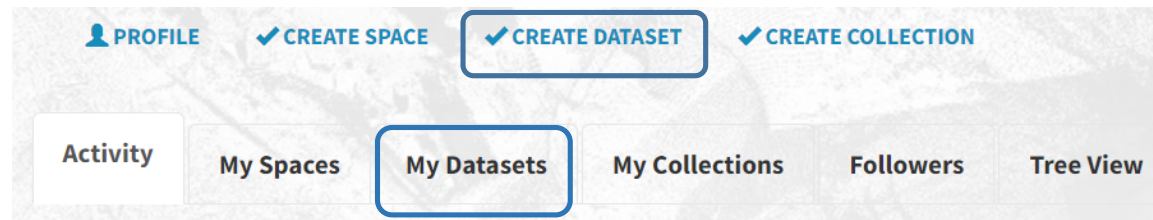
Datasets are the main resource type and contain files, folders and generic metadata.

Each dataset has a name, description, owner and license.

Users

Users can have different roles

- o **Viewers:** can view and download data
- o **Editors:** viewers + manage (add, remove) data in datasets, collections and spaces
- o **Administrators:** editors + can manage users and roles

What is a Previewer?

Previewers

Previewers are used to preview the content of large files and visualize the information contained in files and datasets in a meaningful way. These tools are triggered automatically, when a file is uploaded, according to the data type of the file.

Previewer can work together with extractors and external services.

- Show a smaller version of a larger file

- Show derived information created by an extractor

- Let users interact with data

List of available Previewers

Audio previewer	Audio previewer is a previewer for .mp3, .mpeg and mpeg3 files.
Html previewer	Html previewer is a previewer for .html files.
Plain text previewer	Plain text previewer is a previewer for .txt, .doc, .docx and .csv files.
Viewer hop	Viewer hop is a previewer for .ply and .nxz 3D object files.
Three.js Previewer	Three.js is a previewer for .fbx 3D object files.
3D PDF Previewer	3D pdf is a previewer for .u3d files.
PDF previewer	Pdf previewer is a previewer for .pdf files.
Person tracking	Person tracking is a previewer for video files. This previewer shows you when different subjects enter the frame and leave the frame and even where in the video those subjects are.

What is the Viewer hop Previewer?

Viewer hop Previewer

- Previewer for .ply and .nxz 3D object files.

- It uses 3DHOP in order to render the 3D models.

- 3DHOP is an open-source framework for the creation of interactive Web presentations of high-resolution 3D models, addressing the needs of the Cultural Heritage & Digital Humanities field.

- The most important components in this previewer is the user's interaction with the virtual scene.

What is the ThreeJS Previewer?

ThreeJS Previewer

- Previewer for .fbx 3D object files.

- It uses the ThreeJS library in order to render the 3D models.

- ThreeJS is a library in JavaScript, that allows you to manipulate 3D objects directly in the browser.

What is the NetLogo Previewer?

NetLogo Previewer – Work in Progress

- Previewer for .nlogo simulations

- It uses the NetLogo Web in order to display the simulations

- NetLogo is a platform specifically for agent-based modeling. It provides: a conceptual approach, graphical interfaces, automated simulation experiments, etc.

- Use of simulation of modelling: Long-term societal change and/or human–environment interaction, aspects of human evolution, cultural evolution etc.

What is an Extractor?

> **Extractors**
>
> Extractors are independent processes running outside of the main C4DCH application. Once you have uploaded your files, you can use the extractors in order to visualize your data or extract interesting metadata.
>
> - Separate processing modules that interact with data within C4DCH
> - Can be run anywhere via the same message bus - RabbitMQ - as C4DCH
> - Extractors download files and upload the results back to C4DCH

List of available Extractors

- audio preview

- shapefiles preview

- GeoTiff preview

- image preview

- pdf preview

- video preview

- nlp simple language

- file digest

- cv river

- GeoTiff metadata

- image metadata

- image ocr

- nlp simple summary

- nlp tika

What are the Geo-Extractors?

Geo-Extractors

- They include the Shapefiles preview extractor, the GeoTiff metadata extractor the GeoTiff preview extractor and also an instance Geoserver.

- When a user uploads a GeoTiff or a zip file containing a shapefile, the system provides an interactive map on the dataset or file page that visualizes the geospatial raster or vector based information.
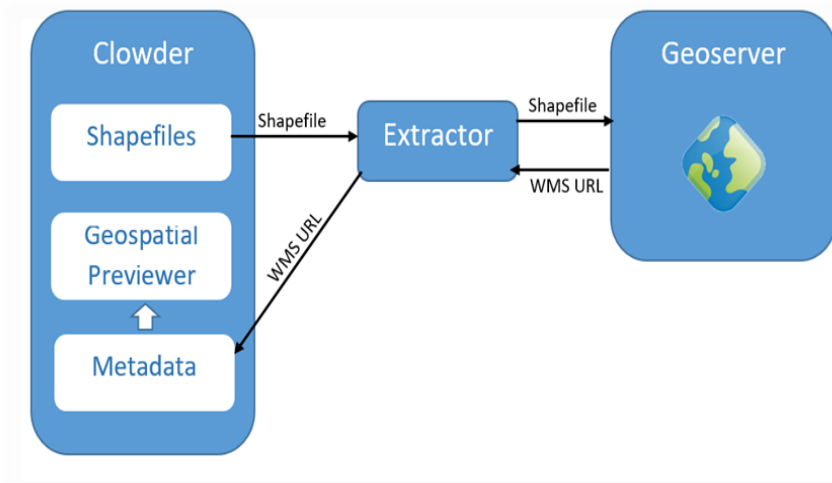
Get in Touch

We'd love to hear your thoughts, feedback and questions

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