



DiSSCO

Be.DiSSCo-FED

____ Be.DiSSCo-FED Final Event
10/06/26 - RBINS

**ORTHANC server and
visualisation plugin 3DHOP**

Donatien Schmitz

UCLouvain

DICOM

is everywhere

Not just hospitals — any scientific domain that captures images can benefit.

Every vendor uses it!



Radiology

X-ray / CT / MRI



Dentistry

Panoramic scans



Cardiology

Ultrasound



Veterinary

Animal imaging



Archaeology

μ CT / 3D surface



Industrial

Quality control

What is DICOM?

Digital Imaging and Communications in Medicine

File Format

- Metadata (patient / object info)
- One 2D image slice (like PNG)
- Stacked → full 3D volume
- Everything in a single .dcm file

Network Protocol

- Store · Query · Retrieve
- Works between any vendor
- Web services built-in (DICOMweb)
- 30+ years of interoperability

One open standard — every vendor, every modality

The logo features the word "ORTHOANC" in a bold, light blue, sans-serif font. The letter "H" is stylized as a blue square with a white outline, containing a white "H" shape. A dark blue circle is positioned behind the "H" and the "A".

ORTHOANC

Open-source DICOM server for science

Born in Belgium · 2012 · Free and open sourced

How it started



2011

CHU de Liège needed to use their own medical images — no existing tool fit the bill.

2012

First free, open-source DICOM server with a REST API that just starts out-of-the-box.

Today

Used in hospitals, research labs, and natural science collections worldwide.

What does Orthanc do?



Store

Receives DICOM files from any scanner or imaging device and stores them with full metadata.



Query & Share

Browse, search, and share studies over a network. Works between sites and institutions.



Extend

A rich plugin system lets you add viewers, AI pipelines, anonymisation, and more.

Key features



Lightweight C++

Tiny footprint — runs on a laptop or a server cluster



REST API

Full HTTP/JSON API — integrate with anything



Plugin system

Extend with C++, Python, or Lua scripts



Anonymisation

Built-in DICOM de-identification profiles



Docker-ready

One command to spin up — Windows, macOS, Linux



Industrial-grade

400k+ LOC, used in production hospitals

Built-in web viewers



Open directly from the browser — no installation needed

3DHOP

3D Surface

- Interactive 3D mesh viewer
- Rotate, zoom, cross-section
- Hotspot annotations
- Perfect for photogrammetry & μ CT surfaces

VolView

CT Volumes

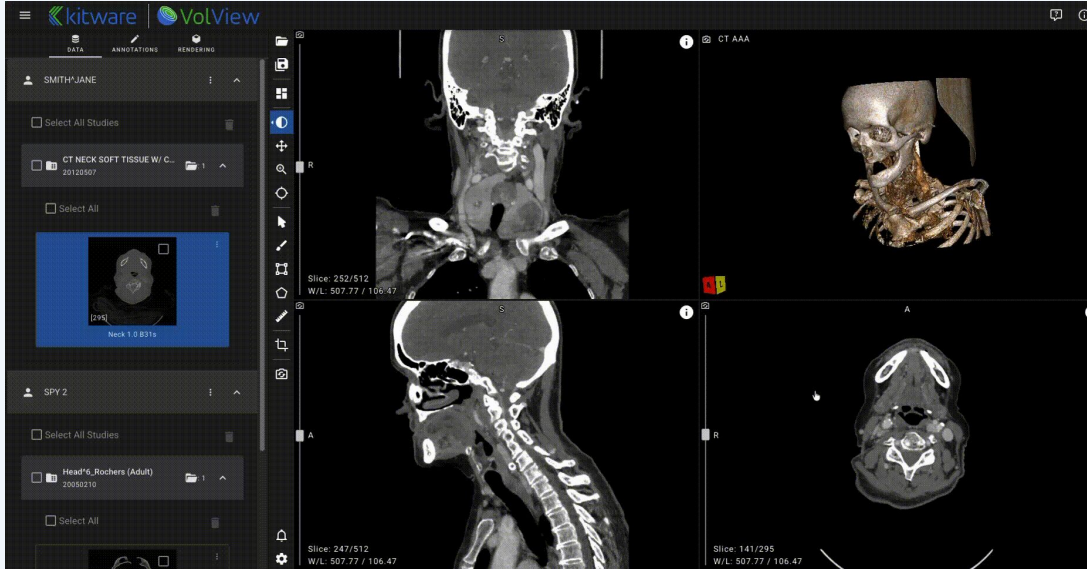
- Full volume rendering
- Adjust opacity & clipping planes
- Multi-planar reconstruction
- Ideal for CT bone stacks

OHIF / Stone

2D / Multi-modal

- Classic DICOM series viewer
- Multi-series comparison
- Measurement & annotation tools
- Works for any DICOM modality

VolView — Volume rendering



- WebGL rendering — runs in any browser
- 3D clipping planes to expose internal structure
- Real-time opacity transfer functions
- Launched in one click from Orthanc Explorer
- Ideal for CT-scanned bones & fossils

Free · Open-source · Plugin

Orthanc at RBINS



Royal Belgian Institute of Natural Sciences → CANATHIST

A screenshot of the Orthanc web interface. The top navigation bar includes links for Home, Collections, Archives, Library, Project, Partners, ORTHANC, Geotools, and Statistics, along with a search box. The main content area is titled "3D Surface View (3DHOP)" and displays a 3D model of a beetle. A left sidebar contains navigation menus for "Files and viewers", "2D Images", "2D+ Images", "3D Surface", and "3D Volume". The "3D Surface" menu is expanded, showing options for "Photogrammetry", "Structured light", and "μCT Surface".

Home / Collections ▾ / Archives ▾ / Library ▾ / Project ▾ / Partners ▾ / ORTHANC ▾ / Geotools ▾ / Statistics ▾

Search Site

Test bibliography ▾

Home / ORTHANC / Multimedia / 3D Surface / INV-ENT / μCT Reconstructed surface

Files and viewers

3D Surface View (3DHOP)

ORT HANC

2D Images

- [Full](#)
- [Tiled](#)
- [IIF](#)

2D+ Images

- [Stacked](#)
- [Multispectral](#)
- [Polarized](#)
- [RTI](#)
- [Sphere](#)

3D Surface

- [Photogrammetry](#)
- [Structured light](#)
- [μCT Surface](#)

3D Volume

- [CT Tomography](#)
 ↳ [2D view](#)

Camera

Rendering

Tools

What RBINS uses it for

- CT & μCT scans of specimens
- 3D surface models (photogrammetry)
- 2D images (stacked, polarised, RTI)
- DICOM as universal format for collections
- Web access via 3DHOP + VolView

Demo — Browsing specimens in Orthanc

ORTANC
Orthanc Demo

- Tous les examens 8 / 8
- Importer
- Serveurs Web DICOM
- Paramètres
- « Ancienne interface

Français

Date de naissance	Nom	ID Patient	Description	Date de l'examen	Modalités	Numéro d'accès	# Ser/Inst
	John^Doe	1234	Chest			1234	
	HN_P001	HN_P001	RT^HEAD_NECK (Adult)	20091022	CT,RTDOS...	2819497684894126	3/200
	VIX	vAD7q3	Extrémités inférieures^Pied_cheville_UHR (Adulte)	20061005	CT	0	1/250
19910101	PHENIX	Vafk,T,6	CT2 tête, face, sinus	20050927	CT	A10011234814	3/723
	KNIX	ozp00SjY2xG	Knee (R)	20070101	MR		6/135
	INCISIX	SOtNwu	Tête^Dental (Adulte)	20060531	CT	0	1/166
19410901	COMUNIX	fYET5.0	Neck^1HEAD_NECK_PETCT	20040304	CT,PT	1657271	2/166
19490301	BRAINIX	5Yp0E	IRM cérébrale, neuro-crâne	20061201	MR	0	7/232
	ASSURANCETOURIX		Thorax^1WB_PETCT	20040721	CT,PT	1909715	3/680

Demo — 3DHOP: Interactive 3D viewer



Our mission

“Freely share knowledge
about medical imaging”

— including about natural science collections

orthanc-server.com · canathist.naturalheritage.be/orthanc

Questions & Discussion



—• Donatien Schmitz

UCLouvain

THANK YOU

DiSSCO

Be.DiSSCo-FED

___ Be.DiSSCo-FED Final Event

10/06/26 - RBINS