



Submission Title: Turning a PACS into a Teaching Platform: The Education Plugin for Orthanc

SUBMISSION PREVIEW: TURNING A PACS INTO A TEACHING PLATFORM: THE EDUCATION PLUGIN FOR ORTHANC

[Turning a PACS into a Teaching Platform: The Education Plugin for Orthanc](#)

Submission ID: 2305429

Submission Type: Applied Informatics Abstracts - Oral

Submission Status: Complete

Applied Informatics Abstract

Topic

Education and Training

Will this abstract be presented by speaker from outside North America?

- Yes

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- I Accept & Agree

Background/Problem Being Solved

Training students to interpret medical images or pathology slides requires providing access to curated repositories of representative cases. However, academic institutions face significant obstacles in sharing DICOM studies with learners, offering appropriate viewing tools, enforcing access control, and integrating imaging into teaching workflows. There is a need for a pedagogical platform that can manage collections of standards-compliant images, provide intuitive Web-based viewers, and integrate with Learning Management Systems (LMS).

Intervention(s)

We developed the "Education" plugin for Orthanc to transform this free and open-source PACS server into an educational image-sharing platform. Instructors can upload DICOM studies and organize them into collections that learners can review using open-source Web viewers (OHIF, VolView, or Stone). The plugin supports converting whole-slide images to DICOM, enabling seamless integration of virtual microscopy into teaching activities. An LMS mode allows interoperability with platforms such as Moodle through the Learning Tools Interoperability (LTI) protocol. The plugin manages user authentication (via credentials, HTTP headers, or LTI), roles (administrators, instructors, learners), and collection-level permissions.

Barriers/Challenges

Key challenges included implementing user management to ensure access to authorized images only, supporting the LTI protocol, and engineering the software to remain lightweight and easily deployable across institutions.

Outcome

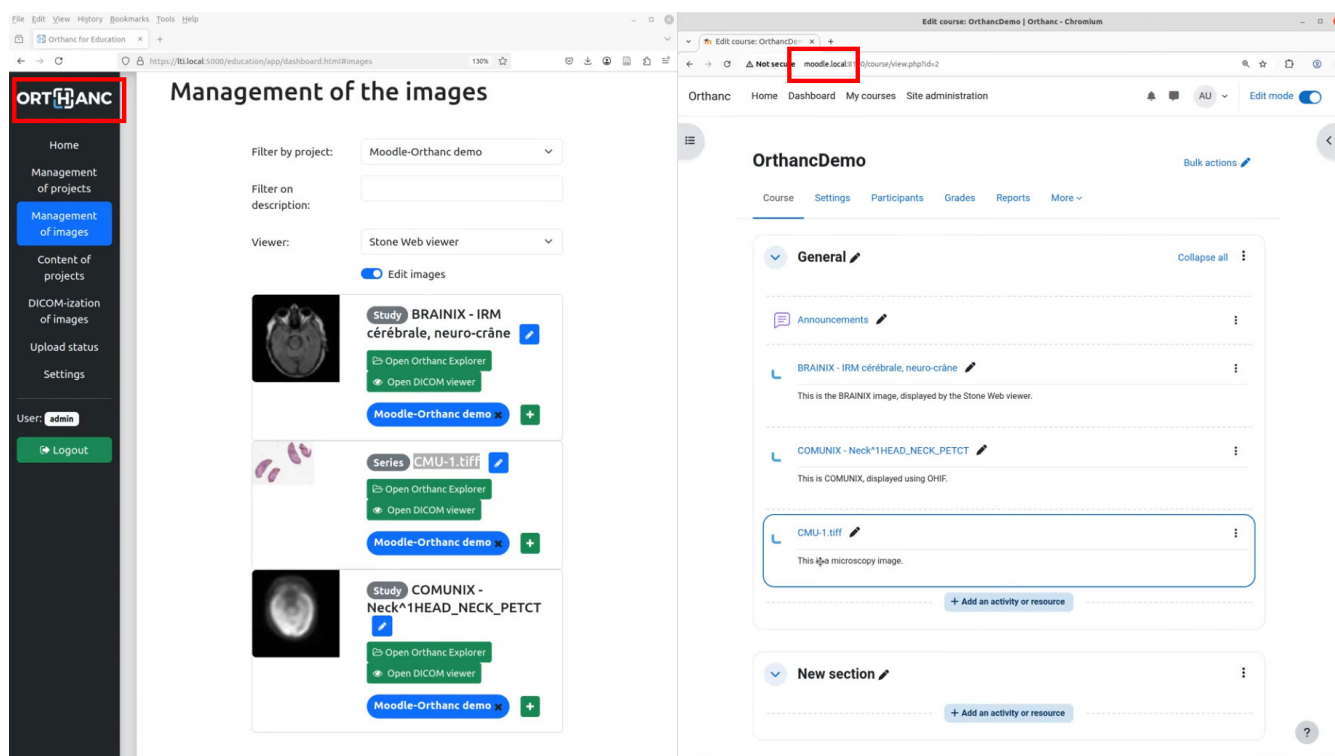
The “Education” plugin was validated under real-world conditions in a systems histology course enrolling 310 students. Learners were authenticated through the single sign-on system of our institution. Digitized histology slides from departmental collections were imported onto the platform. Students could view the slides concurrently at scale, confirming the feasibility of providing a sovereign pedagogical platform for virtual microscopy.

Conclusion/Statement of Impact/Lessons Learned

The “Education” plugin for Orthanc provides an open-source educational platform for medical imaging, bridging the gap between clinical PACS and teaching needs. By lowering the barriers to securely and conveniently sharing real-world DICOM studies with students, it has the potential to enhance training quality in radiology, pathology, and related disciplines.

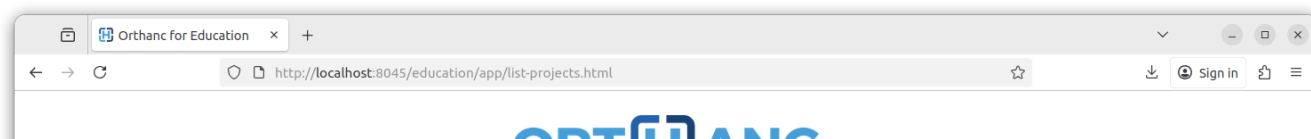
Uploaded File(s)

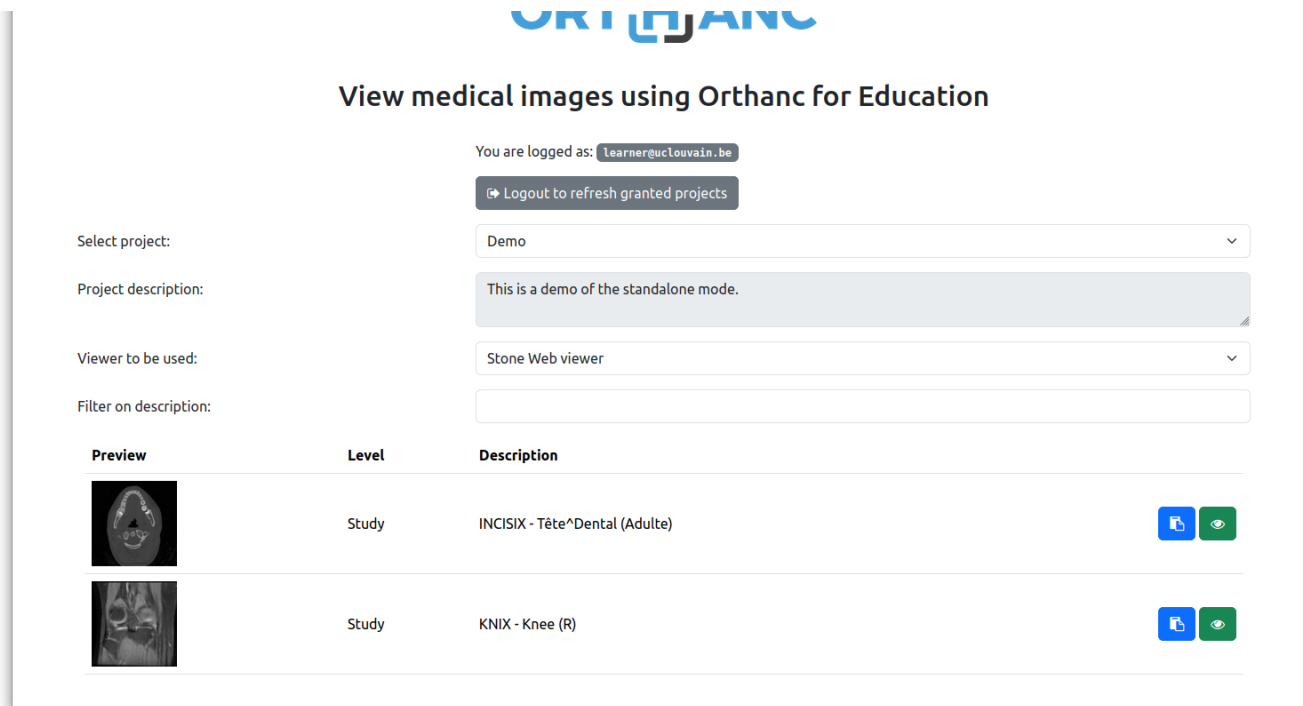
Upload Supplemental Documents



The “Education” plugin running in LMS (Learning Management System) mode. The left panel shows the Web interface of the platform, where administrators can create and manage collections of DICOM images. In this example, the collection includes both radiology and pathology cases. The right panel shows the connected Moodle course, where the instructor has created deep links to images from the collection. Clicking a deep link in Moodle opens the Web viewer chosen by the instructor. This integration between Orthanc and Moodle is implemented via the LTI 1.3 (Learning Tools Interoperability) protocol.

lms.png

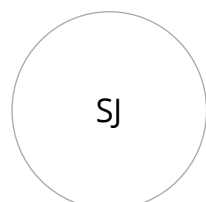




The “Education” plugin running in standalone mode, without being connected to an LMS system. This page displays the medical images accessible to an authenticated learner, who can open them using any Web viewer integrated with Orthanc (OHIF, Kitware VolView, Stone Web viewer, or whole-slide imaging viewer).

standalone.png

Speaker(s)



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Role:
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No

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Keywords

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Educational Systems