

Importing and serving open-data medical images to support AI research

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Objective

Research in Artificial Intelligence (AI) for medical imaging requires large volumes of high-quality, labelled data. **The Cancer Imaging Archive (TCIA)** is such a public repository of DICOM images related to oncology [1].

The aim of this work is to provide researchers and developers with a simple way to import and serve images from the TCIA servers onto a local PACS environment.

Methods

- TCIA provides a network interface (**REST API**) that enables third-party applications to programmatically access its collections.
- **Orthanc is an open-source DICOM server** that can freely be deployed by research teams as their PACS [2].

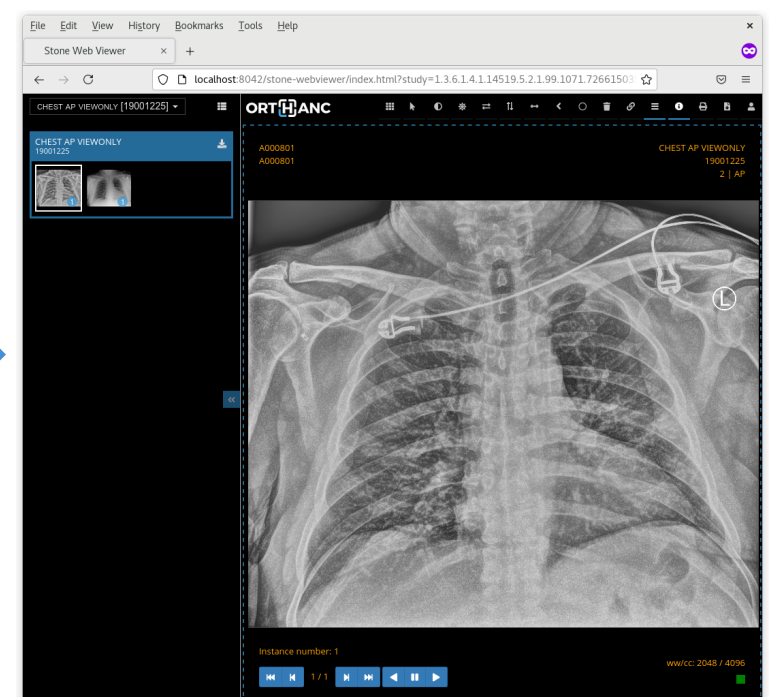
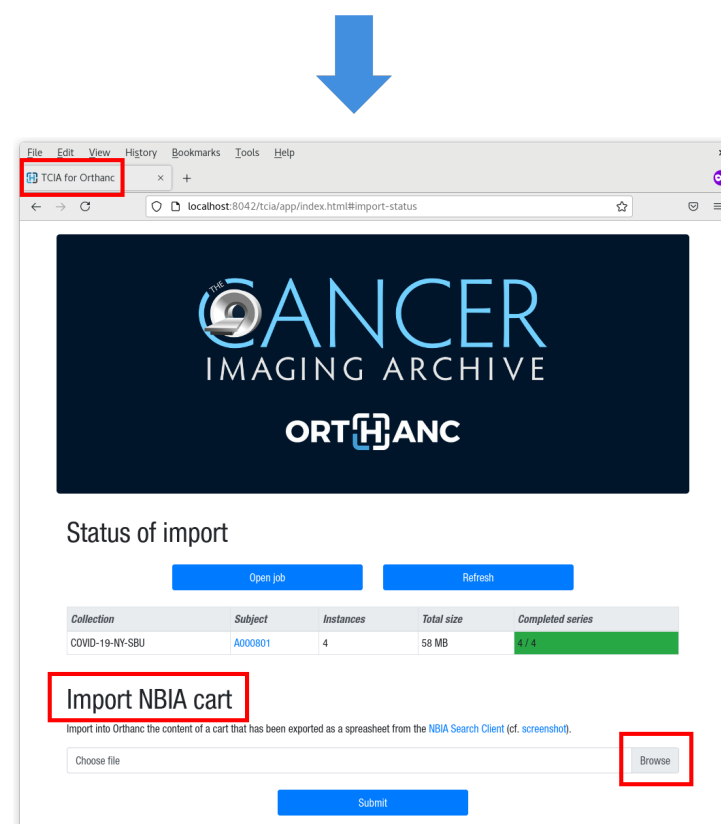
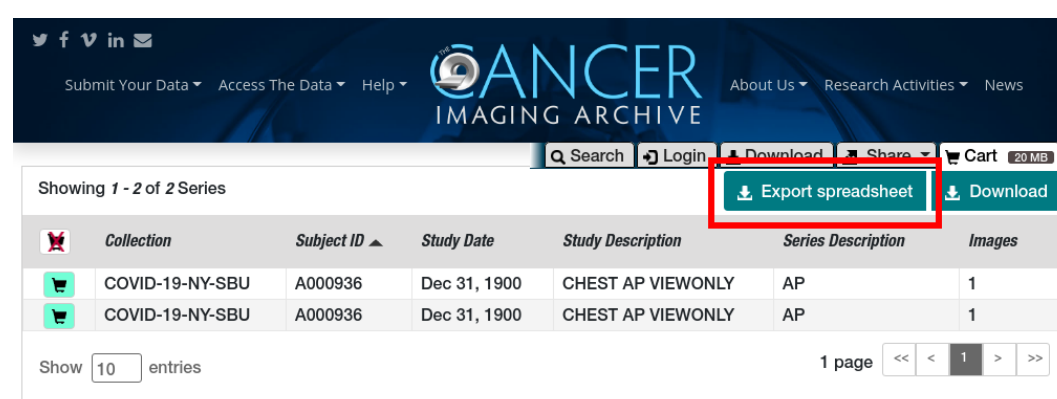
The deliverable of this work is an original, open-source **plugin** for Orthanc that imports images from TCIA using its REST API.

Results

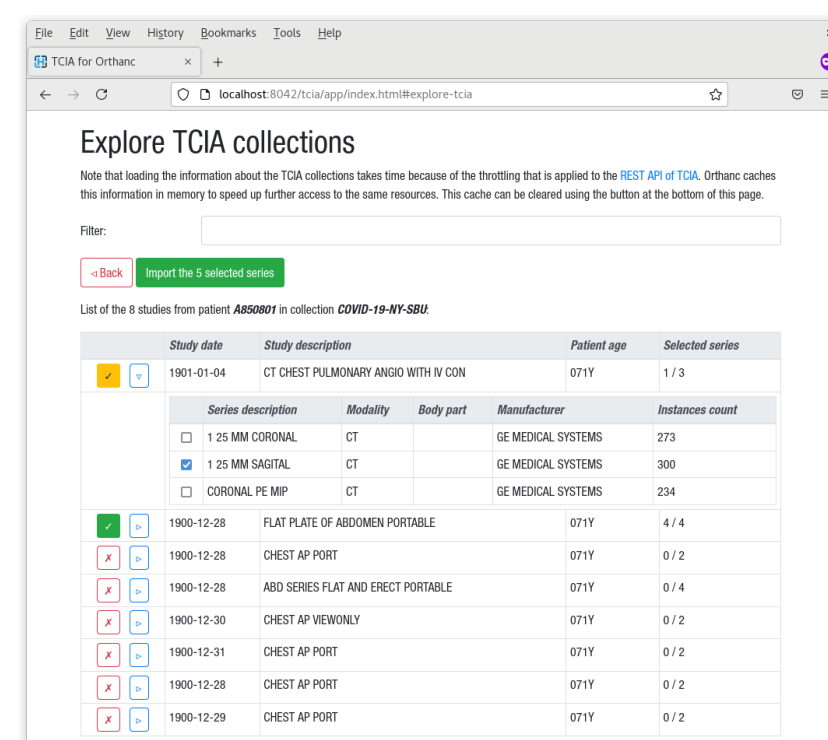
The developed plugin takes the form of an **easy-to-use Web application** to browse TCIA collections and import their images.

The imported images are served according to the DICOM standard (**query/retrieve** from DICOM clients), and can notably be displayed using the **zero-footprint viewer** of Orthanc.

1st option: Import a cart from NBIA Search Client



2nd option: Explore TCIA collections using Orthanc



References

- [1] K. Clark et al. "The Cancer Imaging Archive (TCIA): Maintaining and operating a public information repository". English. In: *Journal of Digital Imaging* 26.6 (Dec. 2013), pp. 1045–1057.
- [2] S. Jodogne. "The Orthanc ecosystem for medical imaging". In: *Journal of Digital Imaging* 31.3 (June 2018), pp. 341–352.



<https://book.orthanc-server.com/plugins/tcia.html>