TCIA Programmatic Interface REST API Guides

This page describes the representational state transfer application programming interface (REST API) implementations that can be used to access TCIA data and resources. The APIs complement the existing web interfaces and enable developers to build direct access to TCIA data into their applications using only the API documentation provided. **The application developer must ensure that they and the users of their applications comply with the** TCIA Data Usage Policy. If you are interested in using the APIs and have any questions, please contact the TCIA Help Desk except where otherwise noted.

- NBIA REST APIs: Provided as part of the NBIA software, these APIs provide access to the search and download functions used in the TCIA radiology portal, and allow access to both public and limited access DICOM collections.
  - The NBIA Search REST APIs allow you to perform basic queries and download data for image analysis on public collections.
  - The NBIA Search with Authentication REST APIs allow you to perform basic queries on and download data for image analysis from public and restricted collections.
  - The NBIA Advanced REST APIs also allow access to public and restricted collections, but are geared towards developers seeking to integrate searching and downloading TCIA data into their own web and desktop applications.
- DataCite REST API: Each Collection TCIA publishes is issued a Digital Object Identifier (DOI) through DataCite . This API can be used to programmatically access Collection metadata such as their DOIs, titles and abstracts. ***Please note that this API was not developed by TCIA***. See https://support.datacite.org/ for any technical questions. The TCIA Helpdesk may be able to assist if your inquiry is related to the content of the data itself.
- TCIA REST API: **[DEPRECATED 6-22-2022]** - The TCIA REST API originally developed using Project Bindaas with Emory University, has been deprecated in favor of the NBIA REST APIs. While the NBIA REST APIs have the same functionality as the Bindaas based TCIA REST APIs, there are some differences that should be noted and tested during conversion from the TCIA REST API to the NBIA REST API. Please see the Migration Guide for details. The existing Bindaas based TCIA REST APIs will remain active but will receive no updates or maintenance going forward. They also do not contain an up-to-date view of our available datasets, so newer collections will not appear if you use them.

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TCIA_Utils

The tcia_utils package contains functions to simplify common tasks one might perform when interacting with The Cancer Imaging Archive (TCIA) via Python. Issues with this package should be submitted at https://github.com/kirbyju/tcia_utils/issues. Example notebooks demonstrating tcia_utils functionality can be found at https://github.com/kirbyju/TCIA_Notebooks.

Installation can be achieved with this Pip command:

```
pip install tcia_utils
```

To import functions related to NBIA for accessing our DICOM radiology data:

```
from tcia_utils import nbia
```

To import functions related to pathDB for accessing our digitized pathology data:

```
from tcia_utils import pathdb
```

To import functions related to Datacite for querying Collection metadata such as their DOIs, titles and abstracts:

```
from tcia_utils import datacite
```

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TCIA Data Usage Policy

Any user accessing TCIA data must agree to:

- Not use the requested datasets, either alone or in concert with any other information, to identify or contact individual participants from whom data and/or samples were collected and follow all other conditions specified in our Site Disclaimer. Approved Users also agree not to generate and use information (e.g., facial images or comparable representations) in a manner that could allow the identities of research participants to be readily ascertained. These provisions do not apply to research investigators operating with specific IRB approval, pursuant to 45 CFR 46, to contact individuals within datasets or to obtain and use identifying information under an IRB-approved research protocol. All investigators including any Approved User conducting “human subjects research” within the scope of 45 CFR 46 must comply with the requirements contained therein.
- Acknowledge in all oral or written presentations, disclosures, or publications the specific dataset(s) or applicable accession number(s) and the NIH-designated data repositories through which the investigator accessed any data. Citation guidelines for doing this are outlined below.
- If you are considering mirroring a copy of our publicly available datasets or providing direct access to any of our data via another tool or website using our REST API please review our Data Analysis Centers (DACs) page for more information. DACs must provide attribution and links back to this TCIA data usage policy and require downstream users to do the same.

The summary page for every TCIA dataset includes a Citations & Data Usage Policy tab (see screenshot below). Please consult the Citation & Data Usage Policy for each Collection before using them.

- ***Most*** data are freely available to browse, download, and use for commercial, scientific and educational purposes as outlined in the Creative Commons Attribution 3.0 Unported License or the Creative Commons Attribution 4.0 International License. A small number of collections impose Creative Commons licenses with commercial use restrictions, but this is no longer an option for new submissions.
- ***Most*** data are immediately accessible and do not require account registration. A small subset of collections do require registration and special permission to gain access. Refer to the "Access" column on https://www.cancerimagingarchive.net/collections/ for more details. Limited Access Collections are currently released under 1 of 2 custom license options:
    - TCIA Restricted License - NOTE: the commercial restriction option is no longer available for new data submissions
        - note: The previous TCIA Limited Access License was deprecated 05-19-2022.
    - NCTN Data Archive License (with collaborative agreement; with no collaborative agreement)
- TCIA takes every step possible to protect the privacy of participants that have agreed to share their data to promote cancer research. Therefore, effective January 6, 2022, all TCIA Collections of brain, head or head/neck cancers (where data could be used to reconstruct a human face) will change from a Creative Commons license to a TCIA Limited Access License. The data will still be available to download for research, but you will need a TCIA account and an approved License Agreement on file with the TCIA Help Desk.

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