

TCIA Radiology Portal User's Guide

Topics on this page describe how to search the local and remote image databases for radiologic images on The Cancer Imaging Archive (TCIA) Radiology Portal.



You can [print and export](#) wiki pages.

Topics in this guide include:

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Introduction to the TCIA Radiology Portal

The TCIA Radiology Portal enables you to search for images in the local TCIA *in vivo* image repository. If available, you can also search remote imaging archives.

TCIA submissions are organized in the following hierarchy, which is important to remember in creating your search query and reviewing search results:

Collection > Patient (Subject) > Study > Series > Images

In other words, a Collection is the largest organizing concept within TCIA and it includes data about Patients (also called Subjects). As you continue to drill down to more granular concepts, Patients contain Studies, Studies contain (Image) Series, and Series contain individual Images.

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Browser Support

TCIA supports the latest versions of Google Chrome and Mozilla Firefox browsers.

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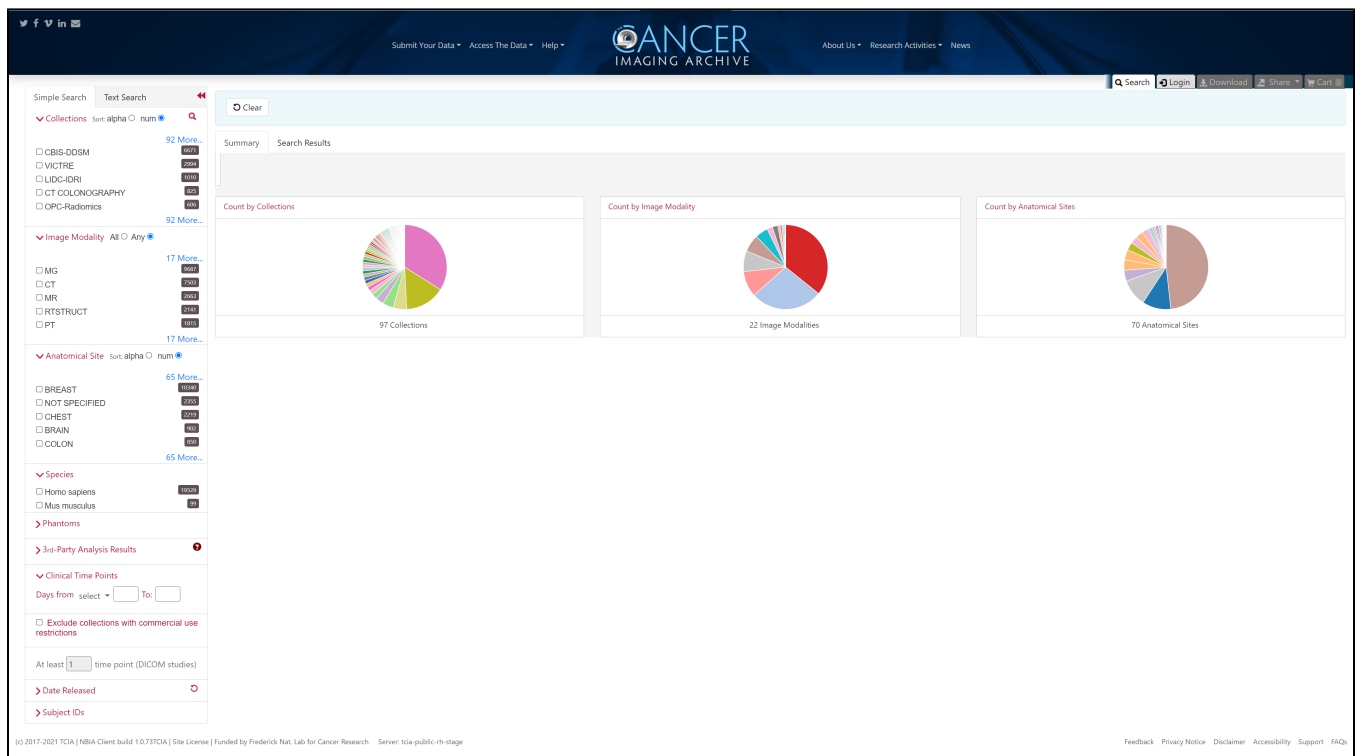
Searching for Image Studies

You can search and download public data without logging in to the TCIA Data Portal. To access restricted data, however, you must log in first to see that data in your search results.

TCIA provides two ways to search for image studies:

- [Simple Search](#)
- [Text Search](#)


When you first open TCIA Data Portal, the Summary tab displays filters for a simple search and pie charts showing counts of collections, image modalities, and anatomical sites in the database. Each pie "slice" is a filter you can use to narrow the data in the portal. Hover over a pie chart slice to view the name of each filter. The size of each pie slice is relative to the size of that filter's representation in the database.



Click one or more boxes next to each search filter to select it. As you select search filters, they move to the top of the list. They also appear in Boolean query format above the pie charts. This query specifies the filters you have applied to your search. Click **Clear** if you want to remove all of your filters at once and start over. You can save your query as a URL for later use or to put in an email to a colleague. For more information about sharing, go to [Sharing Data in Your Cart](#).

You can narrow your search by the following filters:

- Collections
- Image Modality
- Anatomical Site
- Species
- Phantoms
- 3rd-Party Analysis Results
- Clinical Time Points
- Exclude collections with commercial use restrictions
- Date Released
- Subject IDs

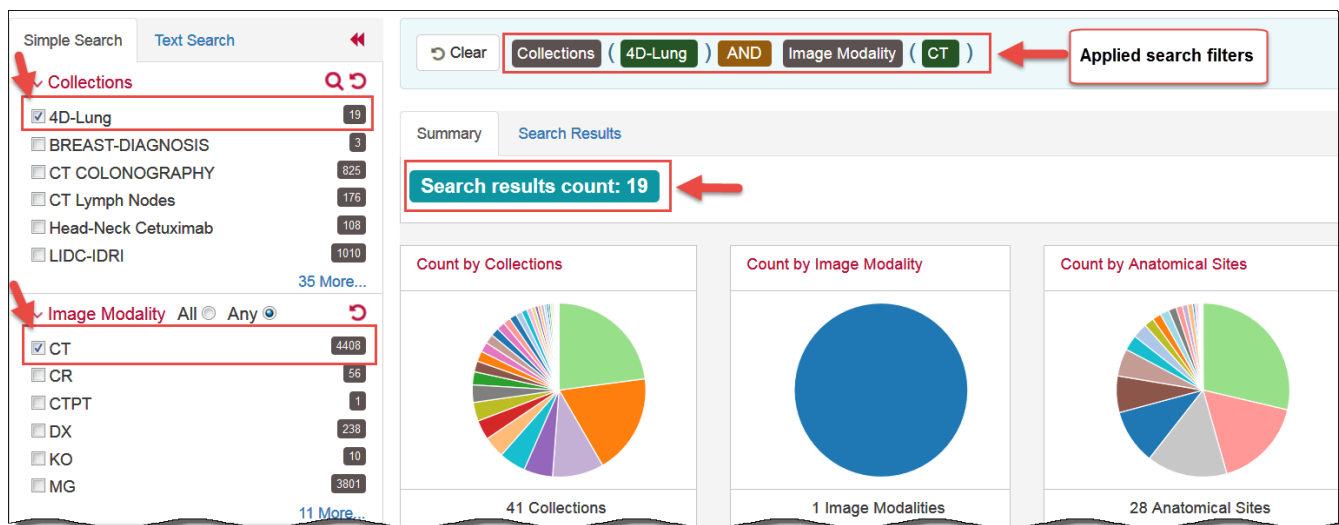
You can also specify the minimum number of image studies you want to match each search filter. For Collections, if you know the name of the collection, click  to enter it instead of finding and clicking the collection's box.



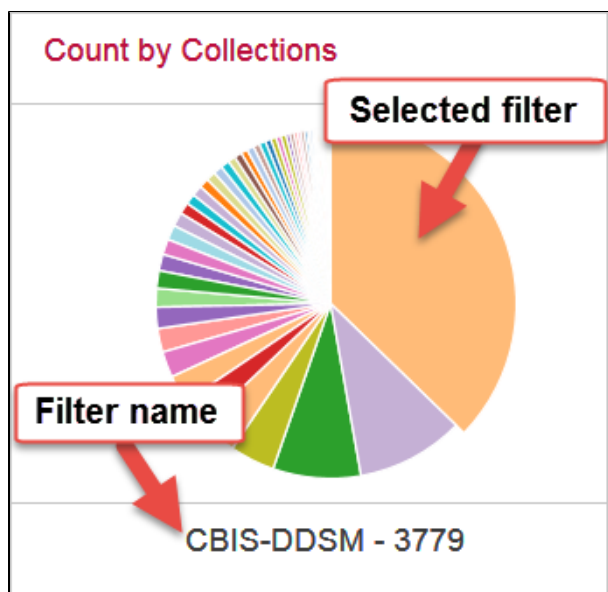
3rd-party analysis results are derived data (e.g. segmentations) that were contributed by researchers who were not part of the group that originally submitted a collection to TCIA.

The Simple Search page shows a summary of image studies that match your search criteria. Your selections appear in the following ways:

- Boxes you selected are checked.
- Pie charts update to show the exact search results.
- Breadcrumb-style labels at the top of the page show the applied search filters (not all may display due to space constraints).
- Count of search results appears.



The pie charts show the count of image studies in your search results by Collection, Image Modality, and Anatomical Site. Click a pie slice or hover over it to see the name of the Collection, Image Modality, or Anatomical Site, and number of each, in your search results.



The Search Results tab shows the same results as the pie charts but in tabular form.

The screenshot shows the TCIA search interface. On the left, there are filters for Collections, Image Modality, and Anatomical Site. The main search area shows a text search for '4D-Lung' and 'CT'. The results are displayed in a table with columns: Cart, Collection ID, Subject ID, Studies, Series, and OHIF Viewer. The table shows 10 results for '4D-Lung' and 'CT'.

Cart	Collection ID	Subject ID	Studies	Series	OHIF Viewer
>	4D-Lung	100_HM10395	34	340	
>	4D-Lung	101_HM10395	11	110	
>	4D-Lung	102_HM10395	17	170	
>	4D-Lung	103_HM10395	38	380	
>	4D-Lung	104_HM10395	32	320	
>	4D-Lung	105_HM10395	34	340	
>	4D-Lung	106_HM10395	32	320	
>	4D-Lung	107_HM10395	24	240	
>	4D-Lung	108_HM10395	28	280	
>	4D-Lung	109_HM10395	33	330	

Text searches involve entering any text that might appear in any search filter.

The screenshot shows the 'Text Search' input field with a red arrow pointing to it and a red box around the placeholder text 'Enter text here'. There are 'Clear' and 'Search' buttons next to the input field.

Results are displayed in pie charts and a table, just as with the simple search.

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Accessing Limited-Access Collections

You can search and download public data without logging in to the TCIA Radiology Portal. To access restricted data, however, you must log in first to see that data in your search results. Consult the [TCIA Collections](#) page to learn which collections have limited access.



1. In the top menu bar, click . The Login window appears.

The screenshot shows the 'Login' window. It has a title bar 'Login' and two input fields: 'User name' and 'Password'. Below the input fields are three buttons: 'Log in', 'New account', and 'Account help'.

2. Enter your user name and password, then click **Log In**.

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Creating a TCIA Account

To create a new account, do the following.

1. Go to the [Legal Framework and Ethical Use of This Resource](#) page to accept the terms.
2. Read all of the content on the page and then click the **CLICKING HERE** link at the bottom.

USER ACCEPTANCE

I HAVE READ AND UNDERSTOOD THE ABOVE PROVISIONS, AND SIGNIFY MY AGREEMENT BY: [CLICKING HERE](#).

The New User Registration page appears.

New User Registration

Password Self Service

To register a new account, please complete the following information. * **All fields are required.** Your password must conform to the following requirements:

- Please choose your password. Passwords are case sensitive and must meet the following requirements:
- Must be at least 6 characters long.
- Must not include part of your name or TCIA user name.
- Your new password must include characters from at least **three** of the following categories:
 - Uppercase letters(A-Z)
 - Lowercase letters(a-z)
 - Numerals (0-9)
 - Special Characters (` ~ ! @ # \$ % ^ & * - + _ = | { } [] () ; ' ' < > , . ? /)

Username	
First name	
Last name	
Email Address	
Confirm Email Address	
Telephone Number	
Organization	
Department	
Title	
New Password	
Confirm Password	

3. Complete the form and click **Create**.

For username and password help, go to [TCIA Account Help](#).



Sometimes, if you emailed the helpdesk before you create your TCIA account, you won't be able to *create* a new TCIA account using that same email on your own. Often the solution is to use the "forgot password" link and then you can proceed.

If that does not work, contact help@cancerimagingarchive.net with the subject line **Account Creation - email taken**.

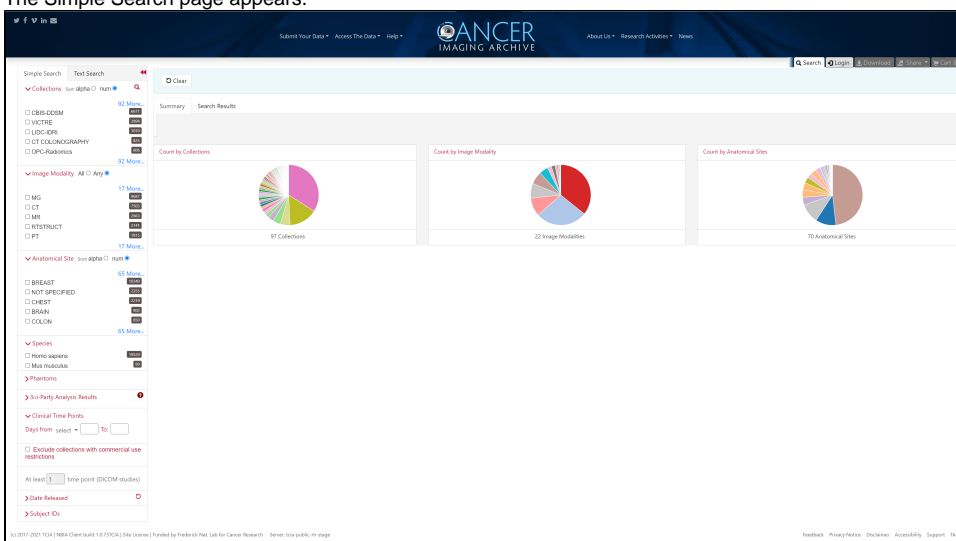
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Performing a Simple Search

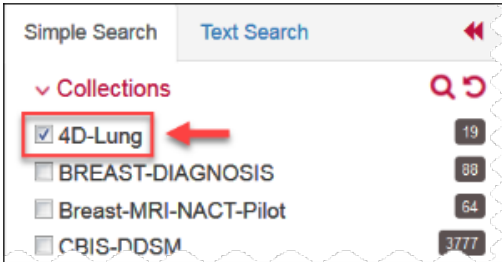
A simple search allows you to search for image studies based on a combination of the following search filters: Collections, Image Modality, Anatomical Site, Species, Phantoms, Third-Party Analysis Results, Date released on TCIA, and Subject IDs. The more criteria you select, the fewer results you receive.

To perform a simple search

- On the TCIA home page, click the **Simple Search** tab.
The Simple Search page appears.



- Select filters to narrow down the available image series.

To Select	Do This
Collections	<p>Option 1: Click the box next to each collection name you want to select.</p>  <div> <p>✓</p> <p>Hovering over a collection name opens a window with information about the collection in it. Quickly move your mouse to this window, where you can select text and click links. The window stays open until you move your mouse away from it.</p> <div> <p>4D-Lung</p> <p>This data collection consists of images acquired during chemoradiotherapy of 20 locally-advanced, non-small cell lung cancer patients. The images include four-dimensional (4D) fan beam (4D-FBCT) and 4D cone beam CT (4D-CBCT). All patients underwent concurrent radiochemotherapy to a total dose of 64.8-70 Gy using daily 1.8 or 2 Gy fractions.</p> <p>A single Radiation Oncologist delineated targets and organs at risk in all 4D-FBCT and a limited number of 4D-CBCT images. All patients underwent concurrent radiochemotherapy to a total dose of 64.8-70 Gy using daily 1.8 or 2 Gy fractions.</p> <p>Please see the 4D-Lung wiki page to learn more about the images and to obtain any supporting metadata for this collection.</p> </div> </div>

Option 2: Click the magnifying glass to enter a name.

Simple Search

Text Search

▼ Collections

Sort: alpha num

search

☐ CBIS-DDSM

6671

☐ VICTRE

2994

☐ LIDC-IDRI

1010

☐ CT COLONOGRAPHY

825

☐ OPC-Radiomics

606

94 More...

Image
Modality

Click the box next to one or more image modalities.

If you select more than one image modality, clicking **ANY** returns any series that have **ANY** of the modalities you selected. Clicking **ALL** returns series from subjects that have **ALL** the modalities you selected.

The image modalities you select don't have to be in the same timepoint/study to appear in the search results.



Be aware that the returned studies may only be a subset of those associated with a single subject. The potential difference between total studies available and the number of studies returned by your search becomes clearer when

you select the Total Studies and Total Series columns to appear in your search results. To do so, click  at the top of the Search Results tab. Select Total Studies and Total Series in the Pick Columns list.

Pick columns

☒ Cart

☒ Collection ID

☒ Subject ID

☒ Studies

☒ Total Studies

☒ Series

☒ Total Series

▼ Image Modality

All Any

☒ CT

4408

☐ CR

56

☐ CTPT

1

☐ DX

238

☐ KO

10

☐ MG



3799


11 More...

Anatomical
Site

Click the box next to each anatomical site you want to select. Click **alpha** or **num** to sort the list alphabetically or numerically. Select **Not Specified** to find data for which the BodyPartExamined field is empty.

Species	<p>Click the box next to the species you want your search results to represent, either human or Mus musculus (mouse).</p>
Phantoms	<p>Click the box next to the phantom option you want to select.</p>
3rd-Party Analysis Results	<p>Third-party analysis results are derived data (e.g. segmentations) that were contributed by researchers who were not part of the group that originally submitted a collection to TCIA. To enhance the value of TCIA collections, TCIA encourages the research community to publish their analyses of existing TCIA image collections. Examples of this kind of data includes radiologist or pathologist annotations, image classifications, segmentations, radiomics features, or derived/reprocessed images.</p> <p>Click the box next to each third-party analysis results option you want to select. Only DICOM data from third-party analysis results appear when using this search filter. A full listing of all third-party analysis data inclusive of non-DICOM formats appears in the TCIA Analysis Results.</p>
Clinical Time Points	<p>Some datasets encode Clinical Time Point information in the image metadata. This filter allows you to refine search results based on how many days have passed since a particular clinical event occurred when these metadata are included by the data submitter (e.g. "Days since diagnosis"). Click select to view the types that are available in the database, plus their available date range. In the from and to boxes, enter numbers that correspond to the range of days from and to that time point.</p>
Exclude collections with commercial use restrictions	<p>TCIA supports collections with different types of licenses. Some licenses prohibit the commercial use of the collection. You can filter your search results to exclude those collections that have commercial use restrictions.</p>
At least X time point (DICOM studies)	<p>Enter the minimum number of time points that match the criteria of your search. This filter allows you to see subjects that have more than one DICOM study (that is, the patient was seen at multiple time points).</p>

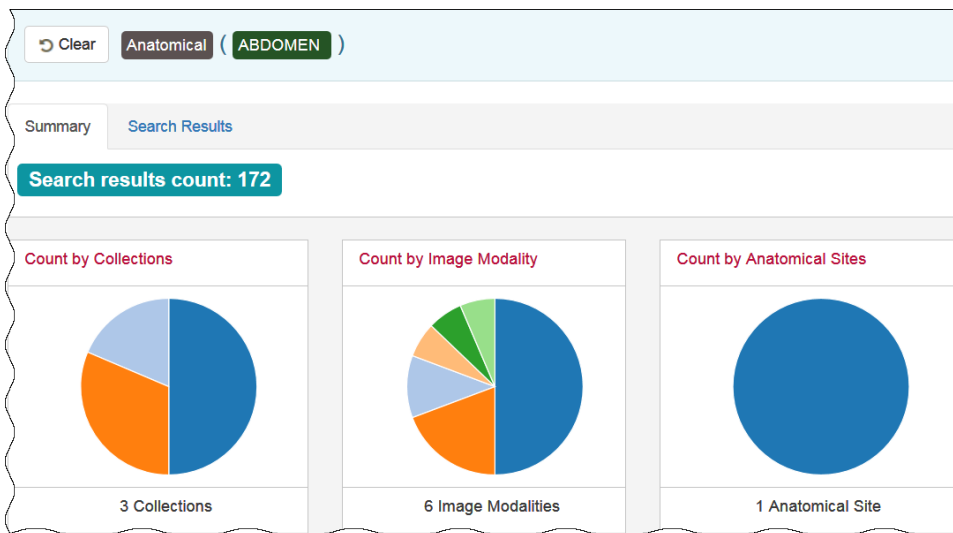
Date Released	<p>Enter a From and To date to narrow your search results to studies that TCIA first made available during that date range.</p> <p>Alternately, select the Apply "Available" date range box to exclude studies that were unavailable to TCIA during the selected date range. Click the  button to return the dates to the default date range.</p> <div data-bbox="344 258 945 531"> <p>▼ Date Released </p> <p>From: 11/19/2019</p> <p>To: 11/19/2019</p> <p><input type="checkbox"/> Apply "Available" date range</p> </div>
Subject IDs	<p>Enter Subject IDs associated with the image series you want to receive in your search results. Separate each Subject ID with a comma and then click Apply Subject IDs.</p> <div data-bbox="344 627 945 1171"> <p>▼ Subject IDs</p> <p>Enter comma separated ID(s)</p> <div data-bbox="376 730 906 1096"></div> <p>Apply Subject IDs</p> </div>

3. Select which columns you want to have appear in the detailed search results on the Search Results tab by clicking  at the top of the Search Results tab. The Pick Columns panel appears.

Pick columns

- ☒ Cart
- ☒ Collection ID
- ☒ Subject ID
- ☒ Studies
- ☒ Total Studies
- ☒ Series
- ☒ Total Series

Search results are shown in two different ways, as a summary and as detailed search results, and which one appears first matches your last choice. The Summary tab shows updated pie charts and the number of image series in the search results.



Click the Search Results tab for [more detailed results](#).

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Performing a Text Search

A text search allows you to query many of the database fields, DICOM image tag data and their values, and annotation files that are not available in the Simple search. You can also use the text search to query for content of DICOM Structured Reports (DICOM SR) and strains from mouse and rat collections. Refer to the [DICOM Data Dictionary](#) for tags or field names you can use in a text search and [Structure of DICOM SR Documents](#) for a description of the fields in a DICOM SR.



DICOM Examples

- Enter *pancreas* in the Text Search box and find all subjects associated with the value *pancreas*.
- Query using the *attribute:searchTerm* technique: for example, *Body Part Examined:pancreas*. In this example, the colon interprets the DICOM field from the value.
- Query by DICOM codes, such as *0018,0015:pancreas*. *0018,0015* is the DICOM code for *Body Part Examined*.
- Query by DICOM SR attributes, such as *0008,0104* for Code Meaning. Entering *0008,0104:tonsil*, returns all subjects with a Code Meaning that includes the word "tonsil," and *0008,0104:tonsil adenoid* returns all subjects with a Code Meaning that includes both "tonsil" and "adenoid."
- Use a wildcard search such as *Body Part Examined:panc** to find all subjects associated with values beginning with *panc*, including *pancreas*, *pancreatic duct*, and *pancreatic duct and bile duct systems*.

Examples for Strains

- Query for the strain name or parts of the strain name or use a value name pair to construct the query. You can query by the Mouse Genome Informatics (MGI) number or query for MGI in the coding scheme designator field. Examples follow.
- *Strain Description (0010,0212) = "NOD.Cg-Prkdc<scid> Il2rg<tm1Wjl>/SzJ"*
- *Strain Nomenclature (0010,0213) = "MGI_2013"*
- *Strain Code Sequence (0010,0219):*
 - *Code Value (0008,0100) = "3577020"*
 - *Coding Scheme Designator (0008,0102) = "MGI"*
 - *Code Meaning (0008,0103) = "NOD.Cg-Prkdc<scid> Il2rg<tm1Wjl>/SzJ"*

The text search does have some restrictions. These are:

- The text string you use must have more than one character. The search won't return any values if the text string has only one character.
- Do not use a forward slash (/) in your text string.
- Do not use complex searches with AND or OR statements (text search supports [Lucene syntax](#) but only a single field can be searched at a time).

To perform a text search

1. On the TCIA home page, click **Text Search** or **Search Images > Text Search**.
The Text Search page appears.

Simple Search

Text Search

Text Search

Clear Search

2. In the Text Search box, enter a text string of two characters or more.

3. Click **Search**.

The search results appear.

Simple Search

Text Search

Text Search

glioma

Clear Search

Search

glioma

Summary

Search Results

Showing 1 - 10 of 369 Subjects

37 pages

Cart	Collection ID	Subject ID	Hit
>	ACRIN-DSC-MR-Brain	ACRIN-DSC-MR-Brain-095	RELAPSED MALIGNANT GLIOMA
>	CPTAC-GBM	CSL-00019	protocolName: BNI GLIOMA PROTOCOL
>	CPTAC-GBM	CSL-00055	protocolName: BNI GLIOMA protocol (NEW)
>	CPTAC-GBM	CSL-00261	protocolName: BNI GLIOMA protocol (NEW)
>	CPTAC-GBM	CSL-00266	protocolName: GLIOMA PROTOCOL (PERFUSI)
>	ICDC-Glioma	GLIOMAD1-L-03A6	patientId: ICDC Glioma
>	ICDC-Glioma	GLIOMAD1-L-05CA	patientId: ICDC Glioma
>	ICDC-Glioma	GLIOMAD1-L-06F0	patientId: ICDC Glioma
>	ICDC-Glioma	GLIOMAD1-L-1165	patientId: ICDC Glioma
>	ICDC-Glioma	GLIOMAD1-L-1166	patientId: ICDC Glioma

Show 10 entries

37 pages



Navigation Tips

- Click the down arrow next to the Subject ID column header to sort the results alphabetically (A to Z or Z to A) by Subject ID.
- Click the arrows at the bottom of the table to display the first, previous, next, or last page of results.
- Click the page number links to move to a specific page of results.
- In the Show (10) entries box in the bottom left, edit the default 10 to the number of entries you want to see on a search results page.

The following table describes each item in the search results table.

Search Result	Description
>	Click the caret to view the subject details . Click the cart symbol to add image series to your cart .
Collection ID	Collection identifier
Subject ID	Click the Subject ID to view all study images for this subject in a DICOM web viewer, a single series' thumbnails, or the DICOM header for the first image in the series.
Hit	The field in the study where the text string you entered as your search criteria appears.

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Viewing Subject Details

The search results from your query are presented both on the Summary tab in pie charts and on the Search Results tab in a table. Each record in the table corresponds to one subject (patient) and displays the collection(s), study(ies), and image series associated with that subject.

From the Search Results tab, you can view subject details, view all image series associated with the subject, and add image series to your cart for download. You can also view the DICOM header for a selected image series. In the future, you will be able to view the image.

To view subject details

- Search for studies that match criteria that interest you.
The Summary tab refreshes to show your search results in pie chart form.
- Click the **Search Results** tab.
The search results that match your criteria appear sorted by Subject ID.





You can [add](#) all studies associated with a subject to your cart at the same time or drill down to an individual study and add it to your cart instead.

3. Click a **Subject ID** link.
All studies associated with this subject appear. In this example, this subject is only associated with one study, and only one image series is associated with that study.



The red asterisk indicates that the date, which is the date that this series was first available at TCIA, has been offset to protect private health information.

4. Click the date or the arrow to the left of the study cart icon to view details about the selected study.
All of the image series associated with that study appear.

You can now:


- View the series description, modality, manufacturer, number of images, and series ID.
- [View thumbnails](#) of the image series.
- [View DICOM data](#) for this image series.
- [View an animation](#) of the image series.
- [Download study data](#).

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Viewing Thumbnails of the Image Series

You can view thumbnails of all images in the selected series and then open selected images for further analysis in another image system.

To view thumbnails

1. [View the details](#) for a subject.
2. Select a study and view its details.
3. In the row for an image series, click .

TCGA-KIRC

TCGA-B0-4712

6

18

TCGA-B0-4712

Aug 04, 1991*

CAP W/O

3 Series

Study UID: ...22263405

Cart	Description	Modality	Manufacturer	Images	Series	Viewers	DICOM
<div><div></div><div></div></div>	SCOUT	CT	GE MEDICAL SYSTEMS	2	...01956153	<div><div></div><div></div></div>	<div><div></div><div></div></div>
<div><div></div><div></div></div>	C/A/P W/O CONTRAST	CT	GE MEDICAL SYSTEMS	123	...19889059	<div><div></div><div></div></div>	<div><div></div><div></div></div>
<div><div></div><div></div></div>	Recon 2: C/A/P W/O CONTRAST	CT	GE MEDICAL SYSTEMS	123	...33324740	<div><div></div><div></div></div>	<div><div></div><div></div></div>

>

Oct 21, 1991*

CAP W/O

3 Series

Study UID: ...60306440

>

Dec 09, 1991*

CT ABDOMEN WITH CONTRA

3 Series

Study UID: ...97296104

Thumbnails of all of the images in the selected image series appear.



- Click any image to download it to your computer.
Follow your browser's instructions to open or save the file.



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Viewing DICOM Data


Digital Imaging and Communications in Medicine (DICOM) is a standard for handling, storing, printing, and transmitting information in medical imaging.





You can view the DICOM tags that form the header of the selected image series.

To view DICOM data

- [View the details](#) for a subject.
- Select a study and view its details.



- In the row for an image series, click . The DICOM tags associated with the image series appear.

Cart	Description	Modality	Manufacturer	Images	Series	Viewers	DICOM
	SCOUT	CT	GE MEDICAL SYSTEMS	2	...01956153	 	

DICOM Tags for Image: 1.3.6.1.4.1.14519.5.2.1.6450.4004.469357866933413753105345646187		
Element	Name	Data
(0002,0001)	File Meta Information Version	00\01
(0002,0002)	Media Storage SOP Class UID	1.2.840.10008.5.1.4.1.1.2
(0002,0003)	Media Storage SOP Instance UID	1.3.6.1.4.1.14519.5.2.1.6450.4004.469357866933413753105345646187
(0002,0010)	Transfer Syntax UID	1.2.840.10008.1.2.1
(0002,0012)	Implementation Class UID	1.2.40.0.13.1.1.1
(0002,0013)	Implementation Version	...1.1.1

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Viewing TCIA Collections

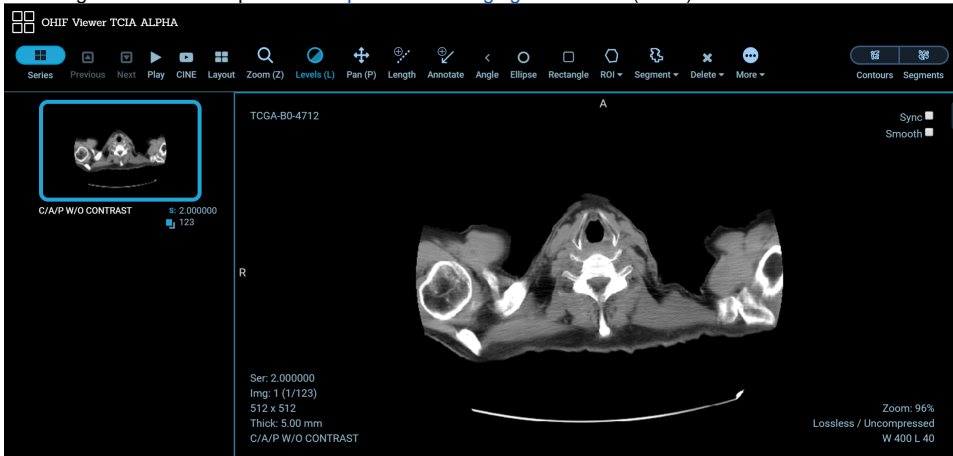
You can visualize TCIA collections before you download them by launching an image animation when there are more than two images in the series.

To view a TCIA collection

- [View the details](#) for a subject.
- Click the study date link for the collection you want to view.
The image series associated with this study appear.

Calc-Test_P_00038_RIGHT_MLO_2		Aug 29, 2017		1 Series		Study UID: ...26968463	
Cart	Description	Modality	Manufacturer	Images	Series	Viewers	DICOM
	ROI mask images	MG		2	...24504551	 	

- In the row for an image series, click  .
The images in the series open in the [Open Health Imaging Foundation \(OHIF\) Viewer](#).



- Click  to display the images in the series sequentially.

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Downloading Study Data

You can download items you add during the current work session. Before you download items you must [download](#) and then [install the NBIA Data Retriever](#).

You select items to download by first [searching](#) for them in TCIA and then [adding](#) them to your cart.

You can also [export data in your cart](#) to a spreadsheet.


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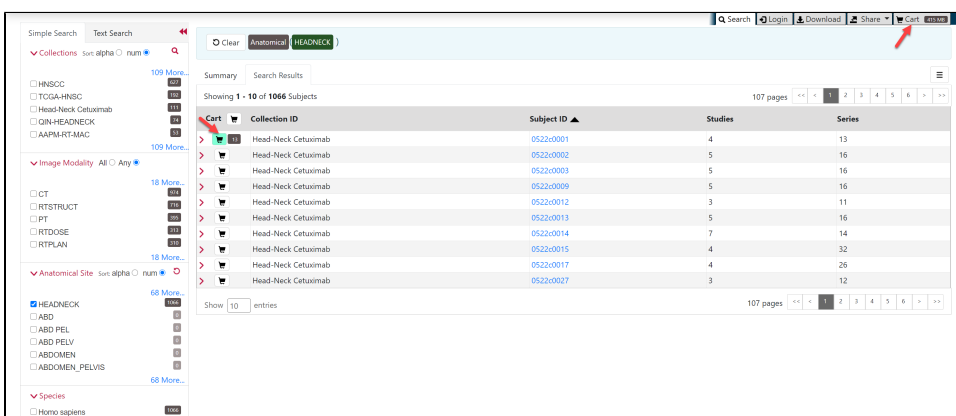
Adding Data to the Cart

Your cart is a holding place for data you have selected to download. You can add all image series associated with a subject, all image series associated with a study, or one or more selected image series to your cart.

To add all subjects to the cart

- [Search](#) for the subject.
- Click the **Search Results** tab.
- Click the subject cart icon in the row of one or more subjects. This selects all studies associated with each subject.
The cart icon turns green and the number of image series now in your cart appears next to the cart. The cart itself, in the upper-right of the window, shows how large the download will be.

 To remove all of the data associated with this subject from the cart, click the cart icon again.



To add selected studies to the cart

1. [Search](#) for the subject.
2. Click the **Search Results** tab.
3. Click a **Subject ID** link or click the arrow to the left of the subject cart to open all series associated with that subject.
4. Click the cart icon for one or more series.
 - The *study cart* icons you select turn green.
 - The *subject cart* icon for the subject turns yellow, indicating that you have not selected all available studies for this subject.

The screenshot displays the NBIA Data Retriever search results page. On the left, there are filters for Collections (HNSCC, TCGA-HNSC, etc.), Image Modality (CT, RTSTRUCT, etc.), Anatomical Site (HEADNECK, ABD, etc.), and Species (Homo sapiens). The main area shows a table of subjects. A modal window is open for Subject ID 0522c0001, showing details for Neck*HeadNeckPETCT and Abdomen*AbdomenPETCT series. The modal includes a table with columns for Description, Modality, Manufacturer, Images, Series, Viewers, and DICOM.

To add selected series to the cart

1. [Search](#) for the subject.
2. Click the **Search Results** tab.
3. Click a **Subject ID** link or click the arrow to the left of the subject cart to open all series associated with that subject.
4. Click a **study date** link or click the arrow to the left of the study cart to open all the series associated with that study.
5. Click the cart icon for one or more series.
 - The *series cart* icons you select turn green.
 - The *study cart* icon for the subject turns yellow, indicating that you have not selected all available series for this study.
 - The *subject cart* icon for the subject turns yellow, indicating that you have not selected all available studies and series for this subject.

This screenshot is similar to the one above, showing the NBIA Data Retriever search results. The modal window for Subject ID 0522c0001 is open, displaying the same series information as before. The interface elements, including the sidebar filters and the main subject table, are consistent with the previous image.

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Downloading the NBIA Data Retriever

After you search for images of interest and add them to your data basket, you can download them.

The most convenient method of downloading them is by using the NBIA Data Retriever. You must install the NBIA Data Retriever before you begin downloading. You only have to install it once to use it in future downloading sessions.

Consult the [NBIA Data Retriever FAQ](#) for more information about NBIA Data Retriever versions and usage.

Get the NBIA Data Retriever

Click one of the following links to download the NBIA Data Retriever for that operating system. See [Downloading Study Data](#) for information on using this application to download data.

- [RPM](#) (tested on CentOS)
To run this file, type the following at the command prompt:

```
sudo yum -v -y remove NBIADDataRetriever-4.4.x86_64.rpm;sudo yum -y install NBIADDataRetriever-4.4.1.x86_64.rpm
```

- [DEB](#) (tested on Ubuntu)

To run this file, type the following at the command prompt:

```
sudo -S dpkg -r nbia-data-retriever-4.4.deb;sudo -S dpkg -i nbia-data-retriever-4.4.1.deb
```

- [NBIA Data Retriever in the Mac App Store](#)
- [Windows](#)



The following new and updated features are available in NBIA Data Retriever 4.4, which was released in September 2022.

September 2022

- If a download fails, you can now save the error report and then retry.

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Installing the NBIA Data Retriever

You can install the NBIA Data Retriever on Windows, Mac, or Linux.

To install the NBIA Data Retriever on Windows

1. Download the installer package for Windows using the [Windows link](#) in the panel above.
2. Save the installer package file to your computer.
3. Install the app by double-clicking the installer package file.
4. Agree to the terms in the License Agreement and click **Install**.
5. When the Setup Wizard ends, click **Finish**.

To install the NBIA Data Retriever on Mac



The Mac version of the NBIA Data Retriever is only available through the iOS App Store. It requires a manifest file to work. You can download the app first or create a manifest file first. If you download the app first, right-click the manifest file and select **Open With Downloader App**. If you create a manifest file first, right-click it and select **Open With App Store**. This installs the app and then opens the manifest file in the app.

1. On your Mac, find the [NBIA Data Retriever on the Mac App Store](#).



The NBIA Data Retriever is a free app but still requires you to log in to download it. Consider changing your iOS Password Settings so that you can download free software without having to log in separately for it.

2. Click **Get**, then click **Install App**. The NBIA Data Retriever is free.
The app starts downloading to your Mac. When the download is complete, you can open a manifest file with the NBIA Data Retriever.

To install the NBIA Data Retriever on Linux (centOS or Ubuntu)

To install the NBIA Data Retriever for all users, you must have the sudo privilege on your computer and a sudo password to install the NBIA Data Retriever on CentOS and Ubuntu.



If you do not use sudo, you can install the app locally by extracting the .deb or .rpm file to a directory where you have execute permissions and then running the app with a manifest file.

1. Download the installer package for CentOS or Ubuntu using the [RPM and DEB links](#) in the panel above.
2. Save the installer package file to your computer.
3. Open a command window and go to the location where you saved the installer.

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Downloading Images Using the NBIA Data Retriever

After [searching](#) for collections and series of interest using the TCIA Radiology Portal, you have the following options for downloading the data.

- Add data to the cart and then [download a manifest file of all of the data in your cart](#).
- Add data to the cart and then [download a manifest file of only selected subjects and/or series](#).
- Download all of the data in the current query immediately. When you download the query, the results are the same as downloading your full cart.

TCIA provides your download in the form of a manifest file (manifest-xxx.tcia). You must [install](#) the NBIA Data Retriever to [open this manifest file and download the data](#). You can access the latest version of the NBIA Data Retriever by selecting **Download > Get NBIA Data Retriever**.

i You can share the manifest file with collaborators so that they can download the same images that you have selected by [sharing your cart](#) or [sharing your query](#). Collaborators must also have the NBIA Data Retriever to open the manifest file you share.

If you want to share a manifest file that includes links to **private** image collections, you must first manually [install the latest NBIA Data Retriever](#). The NBIA Data Retriever controls access to private collections. Your collaborators must have the same access to the private collections in the manifest as you do. Otherwise, your collaborators will not be able to download images from those collections.

Downloading the Cart

You can download a manifest file of the full cart or a partial cart representing your selected subjects and/or series. You may want to do this, for example, if you are building a complex dataset by selectively adding scans to your cart from one or more queries.

Once you download the manifest file, you would then open it in the NBIA Data Retriever to download the data to your computer.

1. [Search](#) for images of interest.
2. [Add](#) those images to your cart. You can add all images or select subjects and/or series of interest.

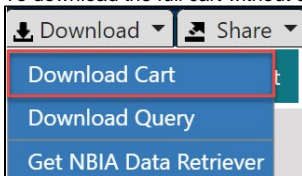


3. Click the cart icon in the top-right of the page

The cart contents appear.

Showing 1 - 4 of 4 Series							Export spreadsheet	Download
	Collection	Subject ID	Study Date	Study Description	Series Description	Images		
	TCGA-LUSC	TCGA-34-5928	Apr 7, 1993	Lung V/Q Scan	Ventilation	1		
	TCGA-LUSC	TCGA-34-5928	Apr 7, 1993	Lung V/Q Scan	Perfusion	4		
	TCGA-LUSC	TCGA-34-8454	Dec 21, 1994	Lung V/Q Scan	Perfusion	4		
	TCGA-LUSC	TCGA-34-8454	Dec 21, 1994	Lung V/Q Scan	Ventilation	1		
Show 10 entries							1 page	

4. To download the full cart without selecting specific series, select **Download > Download Cart**.



or

To download only your selected subjects and series, click



i Another option is to [export the cart as a spreadsheet](#).

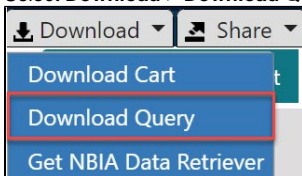
A manifest file including all of the contents of your cart downloads to your browser. Proceed to [opening the manifest file and downloading the data](#).

Downloading the Query

After you have constructed a query by selecting options in the TCIA Radiologic Data Portal, you do not have to go to the cart at all to download it. You can download your query's results immediately. Just as with the cart, the data downloads in the form of a manifest file that you can open with the NBIA Data Retriever. This option is useful and efficient for downloading a lot of data.

To download your query, do the following.

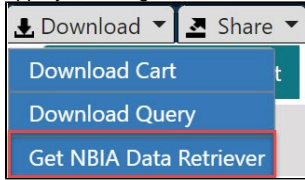
1. [Search](#) for images of interest.
2. Select **Download > Download Query**.



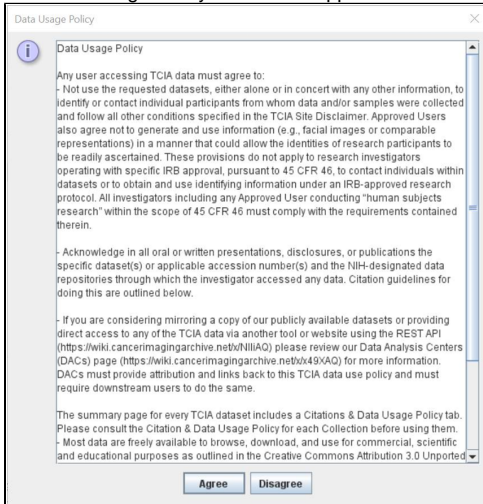
A manifest file including all of the contents of your cart downloads to your browser. Proceed to [opening the manifest file and downloading the data](#).

Opening the Manifest File and Downloading the Data

Once you have a manifest file, you need to download and install the NBIA Data Retriever, which is available for Windows, Mac, and Linux. You can get this app by selecting **Download > Get NBIA Data Retriever**.

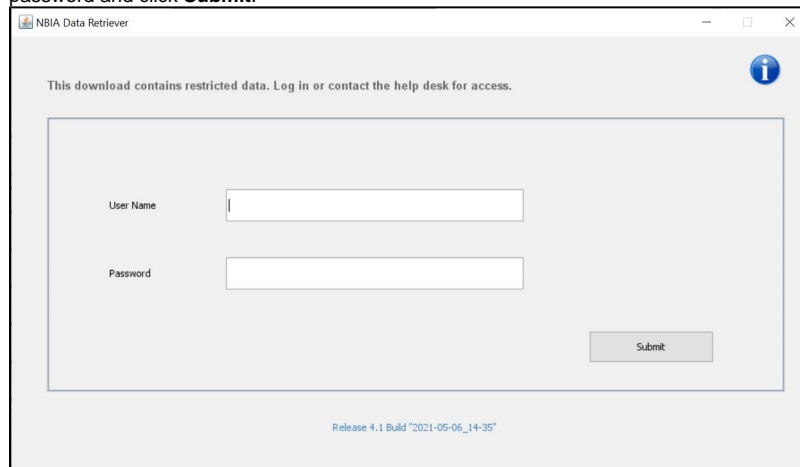


1. Opening the manifest-xxx.tcia file will launch the NBIA Data Retriever. If you're working in a Linux environment, you can also [launch the NBIA Data Retriever from the command line](#). The Data Usage Policy notification appears.



2. Click **Agree**. You must agree to the data usage policy before you can proceed with downloading the data in your cart. Note that this policy is included in the license file accompanying your download.

- If you have added limited-access series to your cart, the NBIA Data Retriever login window appears. Enter your user name and password and click **Submit**.



- If all of the series you have added to your cart are public, the NBIA Data Retriever appears, showing the items you added to your cart in the Downloads table.

The screenshot shows the NBIA Data Retriever application window. It features a 'Downloads' table with the following data:

Collection	Patient ID	Study Instance UID	Series Instance UID	Size	Number Of Images	Progress	Status
Head-Neck Cetuximab	0522C0009	1.3.6.1.4.1.14519...	1.3.6.1.4.1.14519...	203.1 MB	404	0%	Not Started
TestLIDC	TestLIDC-9856526648	88.8.666.33247851...	88.8.666.48275648...	74.8 MB	149	0%	Not Started

Below the table, there are radio buttons for 'Descriptive Directory Name' (selected) and 'Classic Directory Name'. A text field shows the selected directory: 'C:\Users\Winger\Desktop'. A 'Browse' button is next to it. A link for 'TCIA's Data Use Policy' is provided. At the bottom, there are buttons for 'Start', 'Pause', 'Resume', 'Delete', and 'Close'.

Notes:

- To verify the integrity of the download, select **File > Checksum Verification** prior to clicking **Start**. This calculates the checksum value of files you are downloading, comparing it with the same data in the database. If a mismatch is detected, an error message will appear, and you can also click the three dots in the Status column for more information. If you do not select Checksum Verification, the NBIA Data Retriever will still verify the download by comparing the file size of the series you are downloading against the database.
- If there are series in your download that have commercial use restrictions, the NBIA Data Retriever displays a message referring you to the license information for these series.
- You can hover your mouse over the Patient ID, Study Instance, and Series Instance columns to reveal the complete corresponding IDs. You can also resize a column by selecting and dragging the column border.
- If you do not want to download any of those items, select them in the Downloads table and then click **Delete**. When you remove an item from the Downloads table, it stays in your cart in the Radiology Portal.



If you close the NBIA Data Retriever in the middle of a download, NBIA Data Retriever remembers the partial download. When you restart the NBIA Data Retriever, choosing the same download directory as before, and click **Start**, you are prompted to specify whether you want to download just the missing series or download all of the series in the original manifest file.

The screenshot shows a dialog box titled 'Data Partially Downloaded Notification'. It contains an information icon and the following text: 'Some of this data has already been downloaded. Do you want to download only the missing data or all of the data? Note that selecting "Download all" overwrites the existing download folder and data with this new download.' There are two buttons: 'Download all' and 'Download missing series'.

If you choose *Download all*, the existing download folder will be overwritten with all of the series in the original manifest file. If you choose *Download missing series*, only those series you have not previously downloaded appear in the Downloads table in the NBIA Data Retriever window, then download only those series.



NBIA Data Retriever File Naming System

The file naming system used by the NBIA Data Retriever provides a natural ordering of the files within each series. The DICOM files are first ordered by ordinal position of acquisition number and then by ordinal position of instance number. The files are then assigned numbers with the lowest acquisition being 1 and the lowest instance number within that acquisition being 1, separated by a dash. The numbers are incremented by 1 as the next values are encountered. All values are left-padded with zeros to provide for the ordering within the file system.

As an example, a series with two acquisition numbers, with each acquisition having 42 instance numbers, would start with 1-01.dcm for the lowest acquisition number and the lowest instance number in that acquisition. The last file in that acquisition would be 1-42.dcm. Then the second acquisition would start with 2-01.dcm and end with 2-42.dcm. For the purposes of ordering, an empty value in either acquisition number or instance number is lower than an file having a value for those numbers.

3. Select how to organize the downloaded files.

- The Descriptive Directory Name organizes the files in a child folder under the destination folder as follows: **Collection Name > Patient ID > Study Date + Study ID + Study Description (54 char max) + last 5 digits of Study Instance UID > Series Number + Series Description (54 char max) + last 5 digits of Series Instance UID**
 - The Classic Directory Name organizes the files in a child folder under the destination folder as follows: **Collection Name > Patient ID > Study Instance UID > Series Instance UID**
4. Click **Browse** to navigate to the destination folder.
 5. Click **Start** to begin the download. You can monitor the status of the full download in the progress bar on top, and for each collection in the Progress column. The Status column indicates when the download for each item is complete.

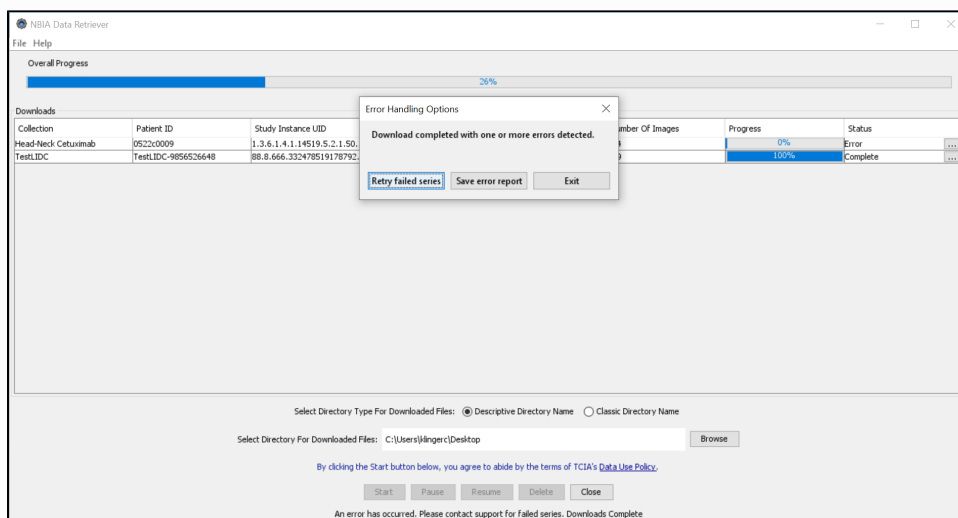
At any point in the process, you can click the **Pause** and **Resume** buttons to temporarily stop and restart the process.



Network Error?

If network errors occur during large downloads, the NBIA Data Retriever retries downloading the series in the manifest file the number of times that your administrator has configured. The default is four times.

After the automatic retries, you have the option of retrying just the failed series, saving an error report, which you can share with the [TCIA A help desk](#), and exiting.



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Exporting the Cart to a Spreadsheet

Once data is in your cart, you can export it to a Comma-Delimited Values (CSV)-format spreadsheet for analysis or sharing with others.

To export your cart

1. [Add data](#) to your cart.

2. Click **Cart** **25 GB**.

The cart appears.

Showing 1 - 10 of 2670 Series							Export spreadsheet	Download
	Collection	Subject ID ▲	Study Date	Study Description	Series Description	Images		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 0.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 10.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 20.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 30.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 40.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 50.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 60.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 70.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 80.0%	50		
	4D-Lung	100_HM10395	Sep 14, 1997	p4	P4*P100*S100*I0, Gated, 90.0%	50		

3. Click



A CSV file called "metadata" opens in your browser. This file provides an overview of the downloaded files.

Desktop > manifest-160028255363

Name	Date modified	Type	Size
4D-Lung	9/16/2020 2:56 PM	File folder	
LCTSC	9/16/2020 3:24 PM	File folder	
metadata	9/16/2020 3:24 PM	Microsoft Excel Com...	117 KB

Metadata file in the manifest folder

This file includes the following columns:

- Series Instance UID
- Collection
- 3rd Party Analysis
- Data Description URI
- Subject ID
- Study UID
- Study Description
- Study Date
- Series Description
- Modality
- Manufacturer
- SOP Class Name
- SOP Class UID
- Number of Images
- File size
- File Location
- Download Time Stamp

AutoSave

0:00

metadata

HomeInsertDrawPage LayoutFormulasDataReviewViewTell me

Paste

Calibri (Body)

12

A⁺

A⁻

Metadata file opened in Microsoft Excel

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Sharing a Query

You can save your query for later use or share it with a colleague by email.

To share a query

1. In the top menu bar, click  **Share** and then select **Share my query**.
The Query URL box appears.

Query URL

Want to save your query for later use or share it with a colleague?
You can do it using the following URL.

https://public.cancerimagingarchive.net/nbia-search/?MinNumberOfStudiesCriteria=1&CollectionCriteria=NSCLC-Radiomics

Note: if new data are added to TCIA at a later date which match your query your search results will be updated to reflect these additions.
If you want to share a static set of data use the 'Share my cart' option instead.

Copy URL **Close**

2. Click **Copy URL**.
The URL copies into your Clipboard.
3. Paste the URL into an email or other document.



Shared queries honor data permissions that may exist. Each person that runs the shared query will only see search results that he or she is allowed to see.


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Sharing Data in Your Cart

Once you have added data to your cart, you can share it as a URL to a static set of data. When you or a colleague opens the URL in a browser window, the new TCIA Graphical User Interface (GUI) opens to the cart page.

In the legacy TCIA data portal, this was called a shared list. This is a similar concept in the new TCIA GUI.

To share data in your cart

1. [Add data to your cart](#).
2. In the top menu bar, click  **Share** and then select **Share My Cart**.
The Retrieve Cart Data URL box appears.

Cart data URL

Want to save your Cart data for later use or share it with a colleague?
You can do it using the following URL.

https://public.cancerimagingarchive.net/nbia-search/?saved-cart=nbia-79341542636681286

Copy URL **Close**

3. Click **Copy URL**.
The URL copies in your Clipboard.
4. Paste the URL into an email or other document.



The shared cart honors data permissions that may exist. Each person that opens the shared cart will only see data that that person is allowed to see.

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