

Searching NBIA for Images 7.0

This chapter describes how to search the local and any selected remote image databases for images.

Topics in this chapter include:

- [Performing Searches](#)
 - [Performing a Simple Search](#)
 - [Performing a Text Search](#)
 - [Performing an Advanced Search](#)
- [Working with Saved Queries](#)
 - [Creating Saved Queries](#)
 - [Viewing and Editing Saved Queries](#)
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Performing Searches

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

NBIA is designed to perform the following tasks:

- Search for images in simple or advanced search mode
- Combine search criteria defined in those searches with keyword searches of curated annotation data
- Save the search queries to be used repeatedly
- Review query histories

As subjects, studies, series or images are located, save them to your data basket for download.



Downloading series with annotation files

When you download a series that has annotation files (indicated by **Yes** in the **Contains Annotations** column), they are automatically downloaded as well.

NBIA 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

NBIA provides three search modes:

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

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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: Collection(s), Image Modality(ies), Anatomical Site, Manufacturer Model(s), Available date, Subject IDs, and Baseline Plus. The more criteria you select, the fewer results you receive. After you select your search criteria, you can create a saved query to use later.

To perform a simple search

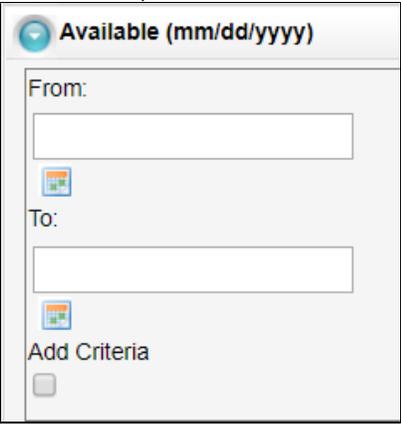
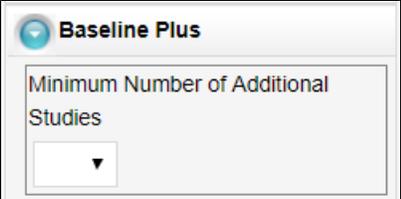
- On the NBIA home page, click **Simple Search** or **Search Images > Simple Search**. The Simple Search page appears.

The screenshot shows the 'Simple Search' interface. On the left, there are several filter sections: 'Collection(s)' with checkboxes for CT Colonography, LIDC, NCR1, Phantom, and Phantom-FDA; 'Image Modality(ies)' with a radio button for 'ANY Modality' and checkboxes for CR, CT, DX, and MC; 'Anatomical Site' with checkboxes for ABDOMEN, BRAIN, BREAST, CHEST, HEAD, KNEE, and LUNG; and 'Manufacturer Model(s)' with 'Available (mm/dd/yyyy)', 'Subject ID(s)', and 'Baseline Plus'. A 'RESET' button is at the bottom of the sidebar. The main content area has a heading 'Welcome to the Simple Search Screen' and a sub-heading 'To perform a search use the selections on the left'. Below this is a search results table with columns: 'Collection ID', 'Subject ID', 'Matched Studies', 'Total Studies', 'Matched Series', and 'Total Series'. A blue arrow points to the 'Image Modality(ies)' filter section. At the bottom of the main area, it says 'To perform other searches please use the menu bar above'. A smaller inset screenshot at the bottom shows the 'Imaging Archive' navigation bar with 'Simple Search' selected.

Choose the search criteria as described in the following table.

Description	Simple Search Criteria
Results per Page	Select the number of search results per page the search will return.
Collection(s)	<p>Collections are NCI-defined groupings of image data sets. Select from the collections to which you can access. If none are selected, then the search returns data for all collections.</p> <p>Click the (?) icon next to the collection name to display a popup with the collection description if it exists.</p> <p>Click Collection Descriptions for more information about the collections.</p>

<p>Image Modality(ies)</p>	<p>Select from the available image classifications. If none are selected, then the search returns data for all modalities.</p> <p>Specify whether to Return cases that include All or ANY Modality.</p> <div data-bbox="370 226 1481 331" style="border: 1px solid #ccc; padding: 5px;"> <p>i Modality description</p> <p>Descriptive text for the modality displays when you hover the cursor over the option.</p> </div> <p>The NBIA data portal can perform ultrasound-specific searches. To launch an ultrasound image search, select US in the list of Image Modalities. When you do so, three additional search options display on the page, shown below. Configure the options appropriately for the ultrasound data you want to search.</p> <div data-bbox="370 451 868 1344" style="border: 1px solid #ccc; padding: 5px;"> <p>Image Modality(ies)</p> <p>Return cases that include:</p> <p><input type="radio"/> ALL <input checked="" type="radio"/> ANY Modality</p> <p><input type="checkbox"/> CR</p> <p><input type="checkbox"/> CT</p> <p><input type="checkbox"/> DX</p> <p><input type="checkbox"/> HC</p> <p>Number of Frames (US)</p> <p><input checked="" type="checkbox"/> Single Frame <input checked="" type="checkbox"/> Multi-frame (Cine Loop)</p> <p>Ultrasound Color Data Present (US)</p> <p><input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No</p> <p>Ultrasound Image Mode (US)</p> <p><input type="checkbox"/> 2D Imaging</p> <p><input type="checkbox"/> Color Doppler</p> <p><input type="checkbox"/> M-Mode</p> <p><input type="checkbox"/> PW Doppler</p> </div> <ul style="list-style-type: none"> ○ Number of frames: One ultrasound DICOM file can consist of multiple frames which you can specify in this option. ○ Specify if Ultrasound Color Data is present. ○ Specify one or more Ultrasound Image Modes. <p>If you choose to view an ultrasound DICOM file in animation, NBIA loops through all of the images in the file.</p>
<p>Anatomical Site</p>	<p>To further restrict the search, optionally choose the anatomical site of interest.</p>
<p>Manufacturer Model</p>	<p>To restrict manufacturer model results, uncheck All Manufacturers. Expand and display the list as needed, and select the items to restrict the search.</p>

<p>Available (mm/dd/yyyy)</p>	<p>To restrict results to the date the image became available in the system, expand the panel, enter from and to dates and select Add Criteria to perform the search.</p> 
<p>Subject ID</p>	<p>To restrict results to a comma-separated list of patient IDs, expand the panel, enter the list of patient IDs, and select Add Criteria to perform the search.</p> 
<p>Baseline Plus</p>	<p>Expand the panel and specify the Minimum Number of Additional Studies.</p> 

 To clear the search criteria and start over, click  .

The search results appear.

Simple Search

Results Per Page: 20

Collection(s): ID-Lung, BREAST-DIAGNOSIS, Breast-MRI-NACT-Pilot, CBIS-DDSM, CT COLONOGRAPHY

Image Modalities: Return cases that include ALL ANY Modality; CR, CT, C1PT, DX

Anatomical Site: ABDOMEN, BLADDER, BRAIN, BREAST, CALF, CERVIX, CHEST

Manufacturer Model(s): Baseline Plus

Collection ID	Subject ID	Matched Studies	Total Studies	Matched Series	Total Series
REMBRANDT	900-00-1961	2	2	17	17
REMBRANDT	900-00-5299	2	2	19	19
REMBRANDT	900-00-5303	2	2	17	17
REMBRANDT	900-00-5308	2	2	17	17
REMBRANDT	900-00-5315	2	2	17	17
REMBRANDT	900-00-5316	2	2	17	17
REMBRANDT	900-00-5317	2	2	20	20
REMBRANDT	900-00-5332	2	2	17	17
REMBRANDT	900-00-5338	2	2	17	17
REMBRANDT	900-00-5339	2	2	18	18
REMBRANDT	900-00-5341	2	2	17	17
REMBRANDT	900-00-5342	2	2	17	17
REMBRANDT	900-00-5345	2	2	16	16
REMBRANDT	900-00-5346	2	2	18	18
REMBRANDT	900-00-5379	2	2	13	13
REMBRANDT	900-00-5380	2	2	24	24
REMBRANDT	900-00-5381	2	2	17	17
REMBRANDT	900-00-5382	2	2	18	18
REMBRANDT	900-00-5384	2	2	16	16
REMBRANDT	900-00-5385	2	2	18	18

611 patients found, displaying Page 1 / 31.

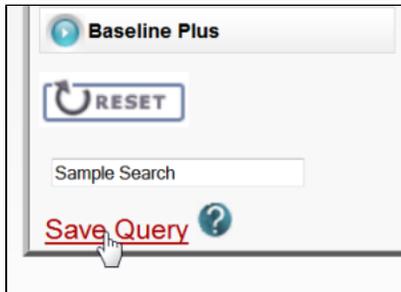
© 2014-2016 TCIA | Site License | Funded by Frederick Nijf, Lab for Cancer Research
Background photo courtesy of Dr. Christopher Nimsky, the University of Marburg, and Siemens Healthcare

Save the Query

You can save your search criteria to make it easier to repeat this query in the future. After you have selected one or more search criteria, the **Save Query** link appears at the bottom left of the page.

To save a search query

1. Select search criteria.
2. In the box above the Save Query link, enter a name for your query.



3. Click **Save Query**.
The query is saved. You can see it by selecting **Tools > View Saved Queries**.

For more information, see [Managing Saved Queries](#).

Navigation Tips

- Click the down arrow next to a column title to sort the column by that item.
- 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.

The Search Results (Studies for Subject) page shows studies associated with the subject that you selected on the Search Results by Subject page. Each study, identified by Study Instance ID, Description, and Date, is followed by a table with rows for each image series in the study. At the top and bottom of the page, breadcrumbs in the format **Search >> Study** show the level of the data on the page. Clicking **Search** in those breadcrumbs returns you to your original search results.

The following table describes the data available for each study and image series in that study.

Field	Description
-------	-------------

DICOM Web Viewer link	Click this link to see all study images in the DICOM Web Viewer.																											
Series	Series identification number																											
Description	Description of the series																											
Modality	Image modality																											
Manufacturer	Name of the manufacturer of the image series																											
Images	Displays the number of images in the series. This number includes visible images that meet the search criteria.																											
Thumbnails	Click this link to display thumbnails of the series' images. For more information, see Search Results (Images for Series) .																											
Cine Mode	 <p>Click  in a series record to launch an animation of the series. This feature is only available when two or more thumbnails are available for the series. For more information, see Viewing Image Animation.</p>																											
DICOM	 <p>Click  to open a new window that displays DICOM metadata about the first image in the series.</p> <div data-bbox="332 798 1291 1218" style="border: 1px solid gray; padding: 5px;"> <p style="text-align: center;">DICOM Tags for Image 1.3.6.1.4.1.14519.5.2.1.4334.1501.307417499578617120187809539151</p> <table border="1"> <thead> <tr> <th>Element</th> <th>Name</th> <th>Data</th> </tr> </thead> <tbody> <tr> <td>(0002,0001)</td> <td>File Meta Information Version</td> <td>00'01</td> </tr> <tr> <td>(0002,0002)</td> <td>Media Storage SOP Class UID</td> <td>1.2.840.10008.5.1.4.1.1.2</td> </tr> <tr> <td>(0002,0003)</td> <td>Media Storage SOP Instance UID</td> <td>1.3.6.1.4.1.14519.5.2.1.4334.1501.307417499578617120187809539151</td> </tr> <tr> <td>(0002,0010)</td> <td>Transfer Syntax UID</td> <td>1.2.840.10008.1.2.1</td> </tr> <tr> <td>(0002,0012)</td> <td>Implementation Class UID</td> <td>1.2.40.0.13.1.1.1</td> </tr> <tr> <td>(0002,0013)</td> <td>Implementation Version Name</td> <td>dcm4che-1.4.34</td> </tr> <tr> <td>(0008,0005)</td> <td>Specific Character Set</td> <td>ISO_IR 100</td> </tr> <tr> <td>(0008,0016)</td> <td>SOP Class UID</td> <td>1.2.840.10008.5.1.4.1.1.2</td> </tr> </tbody> </table> </div> <p>Each image series can have multiple images whose thumbnails display in this search results page. While each image has its own DICOM file whose attributes may vary slightly from the others in the series, the DICOM file that opens displays values for only the first image in the series. These values represent the values for all images in the series.</p>	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	1.3.6.1.4.1.14519.5.2.1.4334.1501.307417499578617120187809539151	(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 Name	dcm4che-1.4.34	(0008,0005)	Specific Character Set	ISO_IR 100	(0008,0016)	SOP Class UID	1.2.840.10008.5.1.4.1.1.2
Element	Name	Data																										
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(0008,0016)	SOP Class UID	1.2.840.10008.5.1.4.1.1.2																										
Add to Basket	<ul style="list-style-type: none"> Click  to select a series and add it to your data basket, or  to remove it from your data basket. To mark <i>all</i> series in the search results as records you want to add to your data basket, click  Add all found to  <p>For more information, see Managing the Data Basket.</p>																											
Add a Study series to Basket	To add <i>only the series in a single study</i> in the search results to your basket, click  in the Add This Study to Basket section.																											

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Performing a Text Search

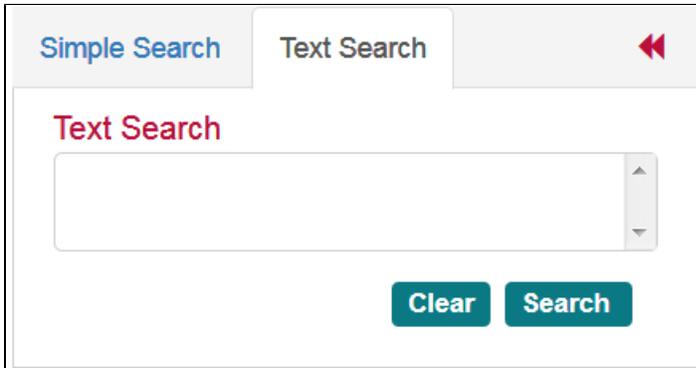
A text search allows for searching of many of the database text fields, DICOM image tag data, and annotation files that are not available in the Simple search. Refer to the [DICOM Data Dictionary](#) for tags or field names you can use in a text search. A simple example of a text search is to find all subjects associated with the value *pancreas* by typing *pancreas* in the Text Search box. You can also use the *field:searchTerm* technique; for example, *Body Part Examined:pancreas*. In this example, the colon interprets the DICOM field from the value. Since text search also recognizes DICOM codes, you can also search on *0018,0015:pancreas*, which is the DICOM code for *Body Part Examined*. Additionally, you can 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*.

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).

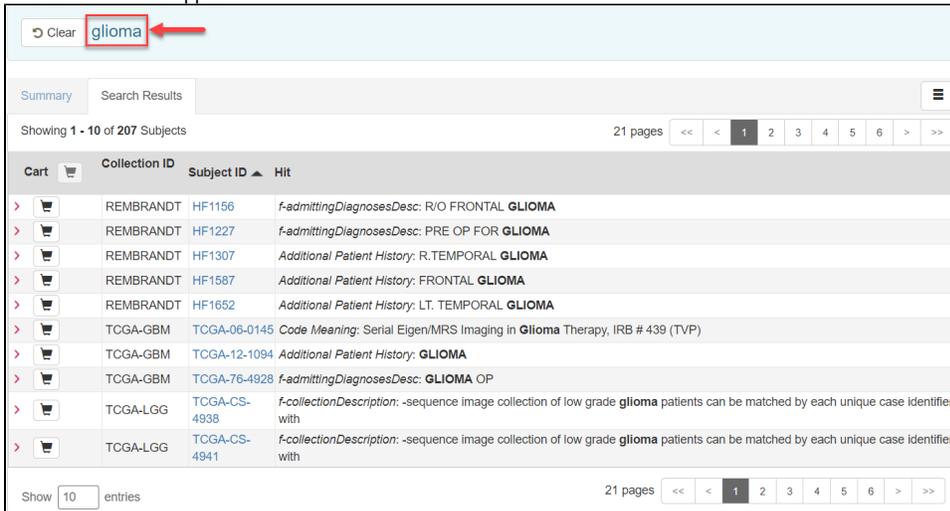
To perform a text search

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



2. Select the number of search results per page you want the search to return.
3. In the box at the top of the page, enter a text string of two characters or more.
4. Click

The search results appear.



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.
- For performance Text Search will only return the first 3000 subjects that match the criteria

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 the details for all study images for this subject, 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 that you entered in the search criteria appears.
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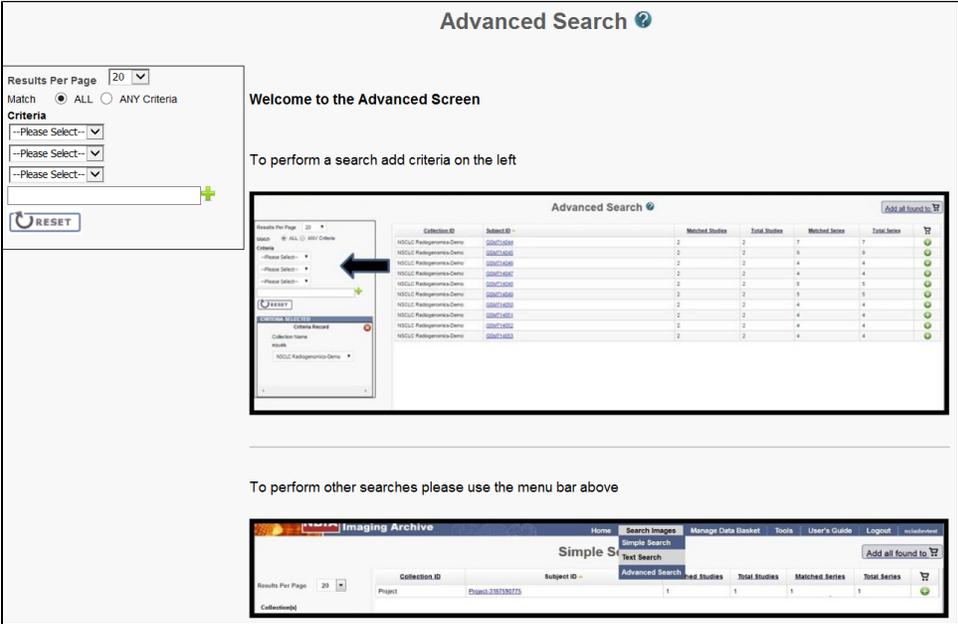
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Performing an Advanced Search

An advanced search allows you to search against multiple combinations of values within Collections, Patient, Study, Series, or Image objects. You can build search criteria based on data values or ranges at the image series level.

To perform an advanced search

1. On the NBIA home page, click **Advanced Search** or **Search Images > Advanced Search**. The Advanced Search page appears.



2. Select the number of search results per page the search will return.
3. From the Match options, select **ALL** to find image series that meet all of your search criteria or select **ANY Criteria** to find image series that meet any of your search criteria.
4. From the first Criteria list, select an NBIA entity. Your selection here determines the options available for the rest of the search criteria.
5. Select options from the lists or enter text into the box as needed to perform your search. If you enter text into the box, click the **Add** icon () for each set of criteria you define. As soon as you specify the final criterion, the criteria you selected appear in the box below the criteria and the search results appear to the right.

 **Modality searches**

Modality searches only support the CT and MR modalities.

Advanced Search  Add all found to 

Results Per Page: 20

Match: ALL ANY Criteria

Criteria

--Please Select--

--Please Select--

--Please Select--



CRITERIA SELECTED

Criteria Record

Collection Name equals

Collection ID	Subject ID	Matched Studies	Total Studies	Matched Series	Total Series	
CT Colonography	1.3.6.1.4.1.9328.50.4.0001	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0002	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0003	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0004	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0005	2	2	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0006	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0007	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0008	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0009	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0010	1	1	3	3	
CT Colonography	1.3.6.1.4.1.9328.50.4.0011	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0012	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0013	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0014	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0015	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0016	1	1	3	3	
CT Colonography	1.3.6.1.4.1.9328.50.4.0017	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0018	1	1	4	4	
CT Colonography	1.3.6.1.4.1.9328.50.4.0019	1	1	6	6	
CT Colonography	1.3.6.1.4.1.9328.50.4.0020	1	1	6	6	

825 patients found, displaying Page 1 / 42.



Navigation Tips

- Click the down arrow next to a column title to sort the column by that item.
- 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.

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

Search Result	Description
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. See Search Results (Studies for Subject) .
Matched Studies	Total number of studies for this subject that match the search criteria
Total Studies	Total number of studies for the subject
Matched Series	Total number of image series for the subject that match the search criteria
Total Series	Total number of image series for the subject
	<p>Add the images for a single series or the entire study to your data basket. When you have marked a record for addition to the data basket, it is highlighted in yellow.</p> <ul style="list-style-type: none"> • Click  to select the record and  to clear it. • To mark <i>all</i> records in the search results as records you want to add to your data basket, click the basket icon in the column header or click . <p>For more information, see Managing the Data Basket.</p>

6. To further refine your results, select new search criteria. These new criteria filter your existing results and as with the previous search, the criteria you selected appear in a box below the criteria. Click the  to delete the record from the page or click  to delete all criteria and start over.

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Working with Saved Queries

While performing a Simple Search, you can save your choice of Collection(s), Image Modality(ies), and Anatomical Site as a named query. You can then run that query in the future or edit it if you want to change any of the search criteria. That edited query can either update your original query or become a new query with a new name.

The following procedures are associated with saved search queries.

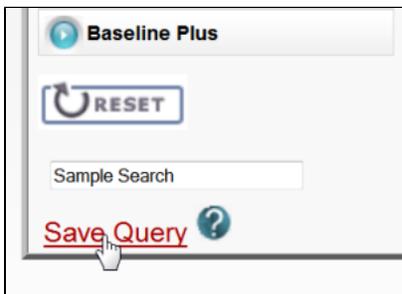
- [Creating Saved Queries](#)
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Creating Saved Queries

To save a search query

1. Select search criteria.
2. In the box above the Save Query link, enter a name for your query.



3. Click **Save Query**.
The query is saved. You can see it by selecting **Tools > View Saved Queries**.

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Viewing and Editing Saved Queries

You can view your saved queries and then edit and resubmit them. You can also view your query history.

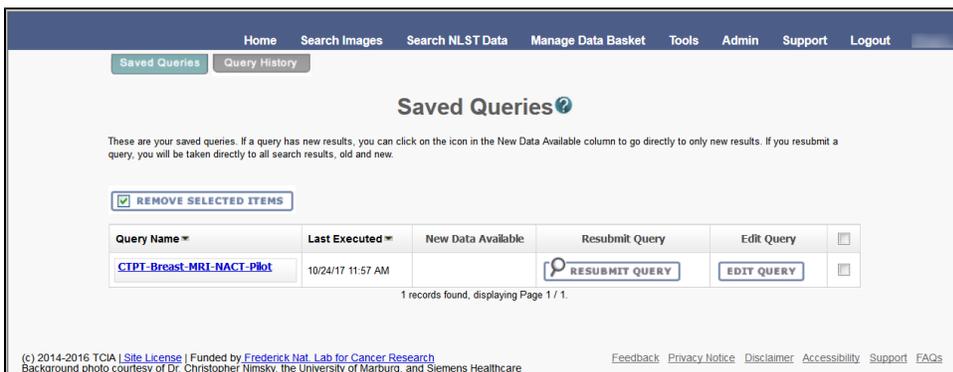


Disallowed Collections and Saved Queries

If you save a query when you have access to a collection then subsequently lose that access, you do not lose the saved query. However, records from a disallowed collection are not included in the search results.

To view, edit, and resubmit saved queries

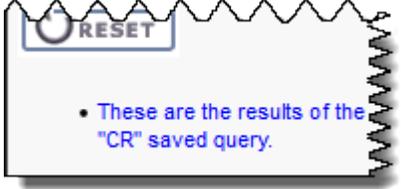
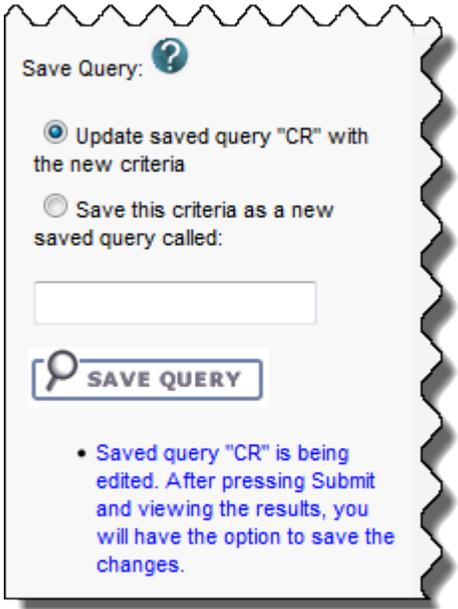
- Select **Tools > View Saved Queries**.
The Saved Queries page appears.



The query table is sorted in descending order by **Last Executed** date by default. You can also sort by **Query Name** by clicking on the down arrow next to the column title.

The following table describes the information about your saved queries on this page.

Saved Query	Description
-------------	-------------

Query Name	The name of the query displays as a link. The default is that the criteria themselves do not display. The link toggles whether the criteria for the saved query displays. Click the link to display/not display the criteria selected for the query.
Last Executed	The most recent date and time you executed the query displays. The time is displayed for the Eastern Time (US and Canada) time zone.
New Data Available	An icon () appears if new data is available for the saved query. Click the icon to display the results (new data only) on the Search Results page.
Resubmit Query	Click this button to open the Simple Search page showing all available results of the currently saved search criteria. A message appears in the lower left corner identifying the source of the search results. 
Edit Query	Click this button to open the Simple Search page with the currently saved search criteria selected. In the lower left corner of the page, the Save Query section provides the options to update the saved query with new criteria or to save these criteria as a new saved query, with a box for the new query name. Select an option and click Save Query . 
Check Box	Click the check box to mark the query for deletion. You can click the checkbox in the header to select all queries or you can select queries individually. Click Remove Selected Items . The Manage Saved Queries page displays a message indicating success or failure and any additional actions that are required.

You can also perform the following action on the Saved Queries page.

Action	Description
View Query History	Click the Query History tab. The View Query History page appears. For more information, see Viewing Query History .

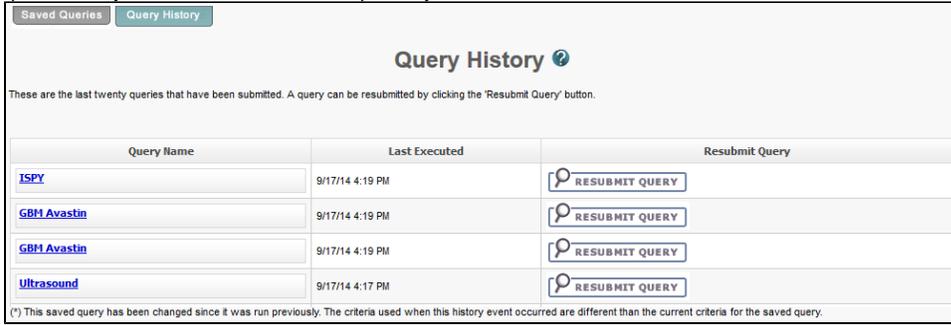
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Viewing Query History

To view query history

- Select **Tools > View Query History** link
or
Click the **Query History** tab from the Saved Queries page.

The Query History page appears. The Query History page displays a table of the last twenty queries that you executed. These include saved queries that you resubmitted as well as queries you have not saved.



Query History

These are the last twenty queries that have been submitted. A query can be resubmitted by clicking the 'Resubmit Query' button.

Query Name	Last Executed	Resubmit Query
ISPY	9/17/14 4:19 PM	
GBM Avastin	9/17/14 4:19 PM	
GBM Avastin*	9/17/14 4:19 PM	
Ultrasound	9/17/14 4:17 PM	

(*) This saved query has been changed since it was run previously. The criteria used when this history event occurred are different than the current criteria for the saved query.

The Query History page contains the following information:

Field Name	Description
Query Name	<p>The name of the query displays as a link. The link toggles whether the criteria for the executed query is displayed. The text of the link can appear in three different ways depending on the situation.</p> <ul style="list-style-type: none"> • If the query was not saved, No Name Provided displays as the link. • If the query is a saved query that has not been edited since the last execution date, the name of the saved query is displayed. • If the query is a saved query that has been edited since the last execution date, the name of the saved query is displayed with an asterisk. The asterisk refers to a message at the bottom of the page which is a warning to you that the results are based on the criteria that were used at the time the query was run, not the criteria that are currently saved for the query.
Last Executed	The date and time that you executed the query. The time is displayed for the Eastern Time (US & Canada) time zone.
Resubmit Query	Click the Resubmit Query button to submit the query using the saved criteria. The results display on the Search Results page.

Click the **Saved Queries** tab to view, edit, or resubmit saved queries (see [Managing Saved Queries](#)).

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