

# Chapter

# **Query Tool**





# **CHAPTER 7 – QUERY TOOL**

he **Query Tool** module is closely related to the Data Repository module, which provides a long term repository for research data. By combining the power of the GUID and the use of a standard vocabulary via CDEs, the *Query Tool* provides a powerful means to filter through volumes of aggregated research data across studies.

The *Meta Study* module is integrated into the Query Tool, allowing researchers to send data and query to a Meta Study by just clicking on the "Send to Meta Study" button. The Data Repository and Data Dictionary modules as well as the Download Tool (which allows users to download data selected in the Query Tool) are also integrated into the Query Tool.

#### **OBJECTIVE**

This chapter provides information for users on how to:

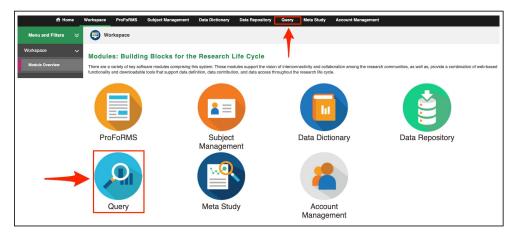
- ❖ Search for studies and/or forms using filters and free text search
- ❖ Filter data by any data element and/or value (Boolean Search)
- ♦ Quickly and efficiently gain an understanding of data that is in the system
- ❖ Download data and save data as a query



#### **Access Query Tool**

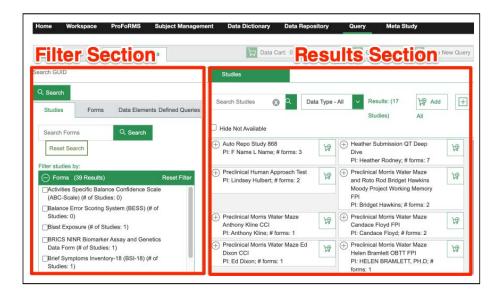
To access the **Query Tool**: Perform the following actions:

- 1. Log in to the system.
- 2. Navigate to the Workspace landing page.
- 3. Click the Query module.



The Query Tool default page will open. This page is broken up into 2 sections. The Filter Section, where you will search and filter for the data you wish to download and the Results Section where the filtered results will be and you can add the items to your Data Cart.

The **Data Cart** is where the different studies and information you are going to want to download. In a later section we will talk about how to refine the data in your Data Cart.

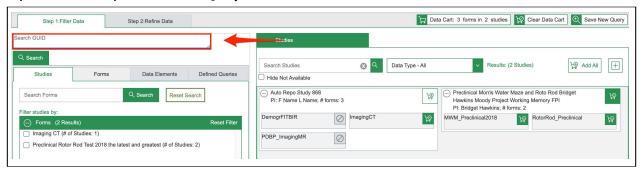


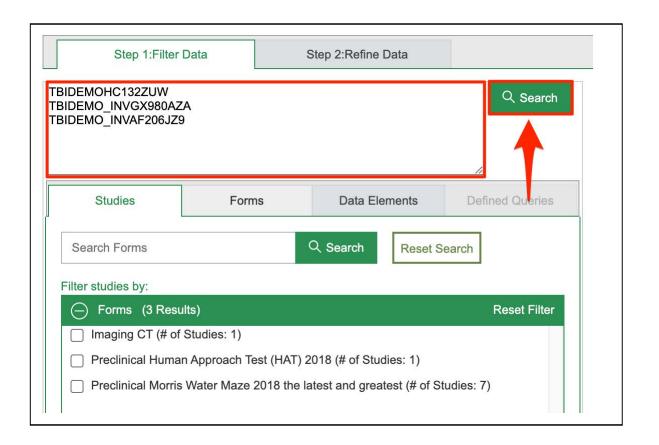


**Search by GUID(s)**: If you are looking for only studies/forms/ or data elements that specific GUID(s) are associated with you can use the Search GUID field under the **Filter Section**.

Enter the GUID(s) you wish to search for, if multiple then separated by a new line, then click the **Search** button to get your results.

**NOTE**: If you use GUID search it will automatically create a filter when you move into **Step2**: **RefineData** and select the form(s) in your data cart. The GUID filter will appear in the **Query LogicBox** containing the GUID(s) you searched for. Note that the filter will not be applied to your data until you click **Run Query**. More about this in **Section7.3** 

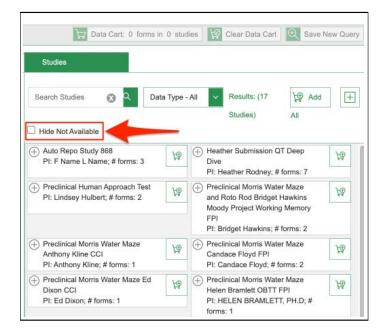




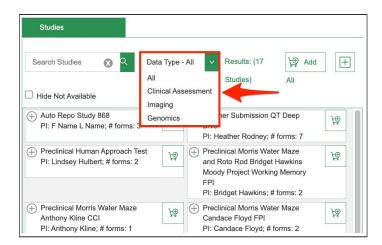


Data can be accessed only from studies the user has permission to access, however, users will still see studies they do not have access to. They will have a grayed out circle to the right of the study.

To view only the studies this user has access too, click on the box labeled **Hide Not Available** under the **Studies Search Box.** The number for the results will change from the total number of studies with data to the number of studies you have access to.



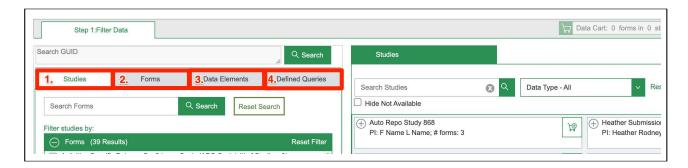
You can also filter the results by using the **Data Type** drop down in the **Results Section** 





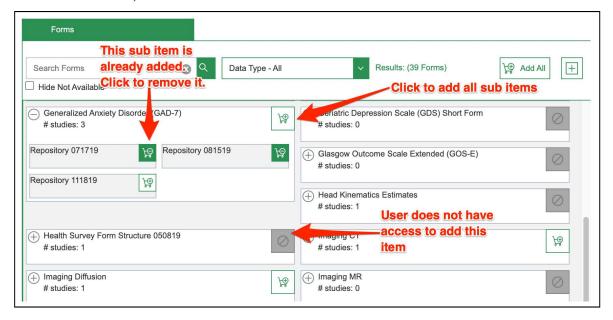
# **SECTION 7.1: FILTER DATA**

There are four methods to filter data within the Query Tool. The four methods include (1) Studies, (2) Forms, (3) Data Elements, and (4) Defined Queries. To View and Refine the data, please refer to Section 7.2 and Section 7.3 of the Query Tool User Guide.



You will use the 4 methods mentioned above to find the data you wish to query. When you find data you wish to add then click the cart icon with the + on it to add it to your **data cart**.

- 1. Clicking the parent of a cart icon will add all sub items to the data cart.
- 2. Clicking the sub item will add only the sub item.
- 3. Clicking the Add All Cart Icon at the top right will add everything currently in the results (right side of screen) section.



After adding an item to your **data cart**, the cart icon will have change to be filled with a solid color and have a "-" **symbol** on it.. To remove an item from the data cart simply click the cart icon again.

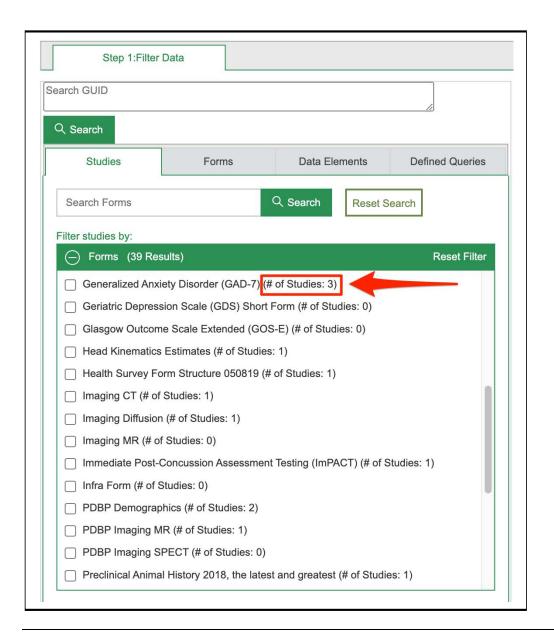


#### I. Filter Data: Studies

Within the Studies Tab, there is a list of form structures (left side of page) and on the result page (right side of the page) are the studies.

1. Within the list of form structures provided, click on the box next to each form structure you wish to filter on.

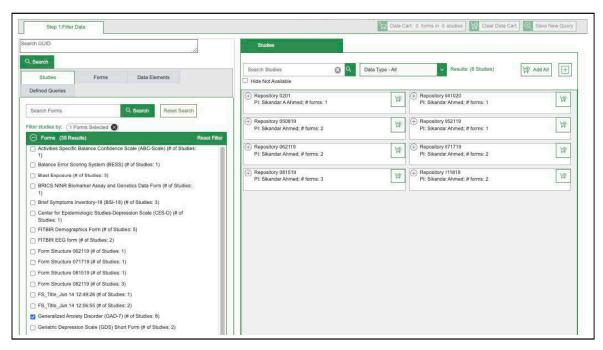
**NOTE:** Next to the name of the form structure is a number that indicates the number of studies that have data submitted. For example, for the form structure titled "Generalized Anxiety Disorder (GAD-7)," there are 3 studies that have data submitted to that form.



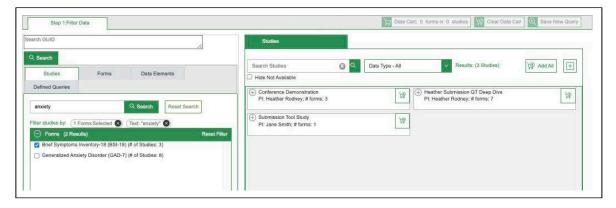


- 2. The other option is to type in the title or short-name of the form structure in the **Search Forms** box then click on **Search.** This will narrow down the number of forms that are visible, but you will still need to click on the box for the form or forms that you desire to filter on.
- 3. The results box (right side of screen) will provide the studies that have data submitted against the form structure.

View of results when the user clicks on Form Structure from the list:



View of results when the user searches for a Form Structure using the short name:

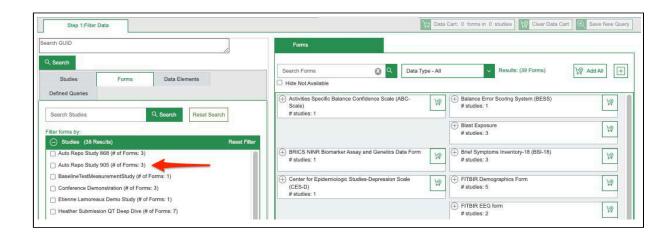




#### II. Filter Data: Forms

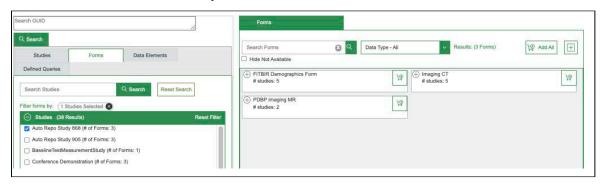
With the Forms Tab, there is the list of all the studies that have data submitted to the Repository, and the results view provides the form structures for the study.

- 1. Within the list of studies provided, click on the box next to the study title or search for the study by typing the Study Name or the Principal Investigator's Name into the Search Studies box and click Search.
  - a. The number at the end of the study title indicates the number of form structures that have data submitted. For example, the "Auto Repo Study 905" study has 3 form structures with data.
  - b. Users will be able to see the form structures for each study, but not access the data unless they have permission to.

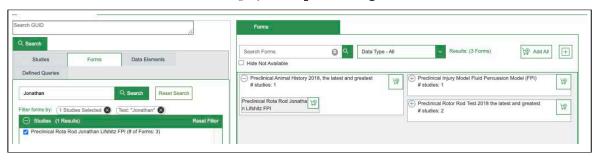




Click the checkbox for the **Study Title** to view the form structures.



View of the form structures searching by Principal Investigator's Name:





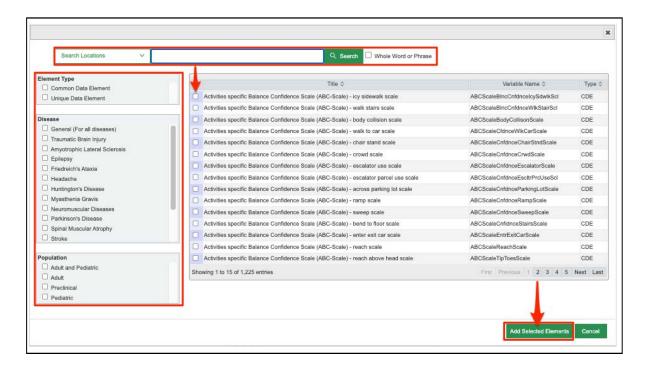
#### III. Filter Forms: Data Elements

Within the Data Elements tab, the results page will provide the form structures that contain a selected data element.

1. Click on the **Select Data Elements** button.

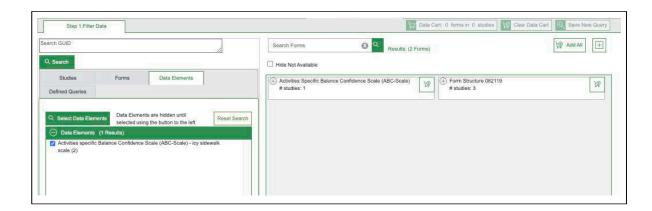


- 2. A pop-up box will appear, which will contain data elements that are published in the data dictionary. Within the pop-up box, users are able to use the **filters** to see the different types of data elements and **search** for data elements by using the search box.
- 3. Select your data element(s) and click Add Selected Elements

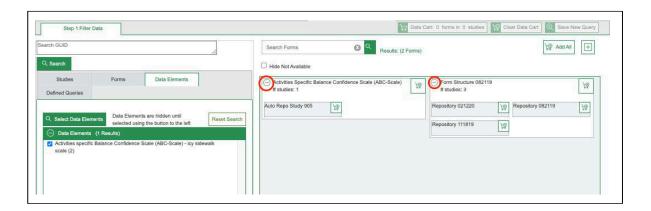




- 4. After adding the data elements, the pop-up box will close and the data elements that were chose will displayed in the **Data Elements Column** on the left side of the page.
- 5. Click on the check-box next to the data element(s), and the result table will provide the associated form structures.



6. If you wish to see the studies that have data for each form structure, you can expand/collapse the form structures in the results table (right column) by clicking the "+" or the "-" at the top left of each item.

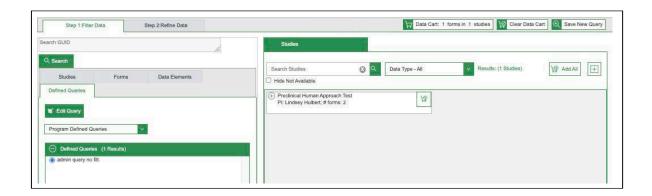




# IV. Filter Data: Defined Queries

Within the Defined Queries tab, the results page will provide data that has been refined by previous, saved users queries. **Note: Only users with permission to the queries can view the filtered data**.

- 1. Click on the **Defined Queries** button, and click on a query that you have permission to access.
- 2. The results table will provide the studies and the form structures that were used in refining the data.
- 3. In the Data Cart, it will display the number of forms and studies in the query.



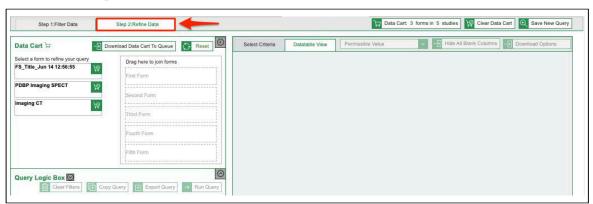


# **SECTION 7.2: VIEW THE DATA**

After choosing the data (please refer to **Section 1: Filter Data** to choose data), **Step 2: Refine Data** will appear, which allows the user to refine their data through the following options:

- 1. Select form structures
- 2. Join form structures
- 3. Select Criteria for refining the data
- 4. View as Datatable
- 5. Perform Boolean Queries
- 6. Download or send data to Meta Study

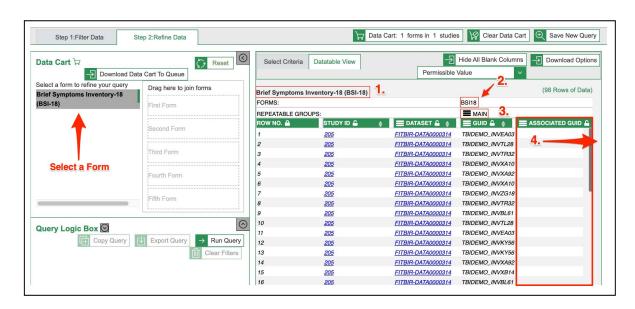
# First select Step 2: Refine Data





#### View Data from Selected Studies and Form Structures

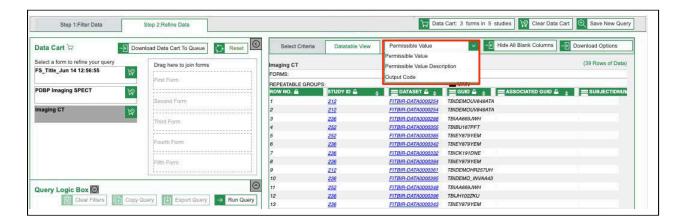
- 1. To view the data in the form structure, click on the form structure. The data in the form structure will appear in the **Datatable View**.
- 2. Within the **Datatable View**, the user will see the following: (1) name of the title of the form structure, (2) the short name of the form structure, (3) the repeatable group name, and (4) the data element in the form structure.





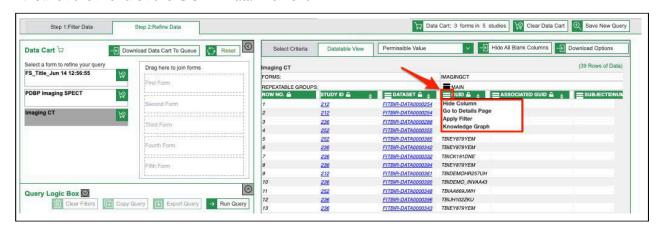
- 3. There are additional capabilities that allow the user to change the view of the data and to explore the data which include the following:
- a. Change the permissible values to: (1) Permissible Value, (2) Permissible Value Descriptions, (3) Output Code.

**Note:** If the data is downloaded, it will appear in the currently selected permissible value format.



b. View the data element information by clicking on the hamburger menu of the Data Element and click on "Go to Details Page". The pop-up box will display the attributes of the data element.

View of the menu of the GUID Data Element:





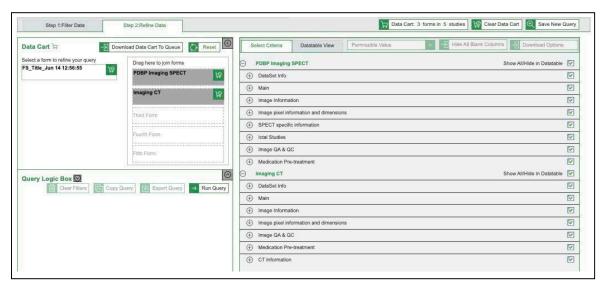
#### The details page for the GUID Data Element:



#### Join Forms

The Query Tool allows the user to conduct a Full Outer Join on the GUID up to 5 forms (within a study and across studies). This allows data associated with the same GUID to be unified across multiple forms.

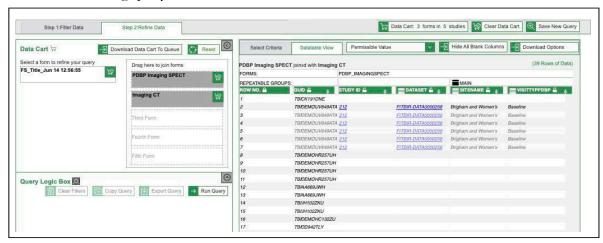
1. Drag the forms to the Join Box. Immediately, the Select Criteria will appear with the form structures and associated data elements to refine the data.





2. Click on **Run Query** (found in the Query Logic Box section), and the data will appear in the Datatable View.

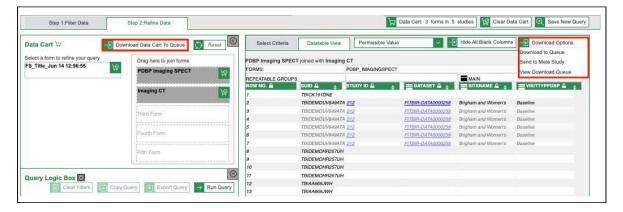
View after running query:



Note: If the GUID is grayed out, it indicates to the user that the data is not in the current form but is in other forms.

3. After joining the forms, the data can be downloaded by clicking on **Download** Options and **Download to Queue**.

Note: To download the data separately, choose Download Data Cart to Queue.



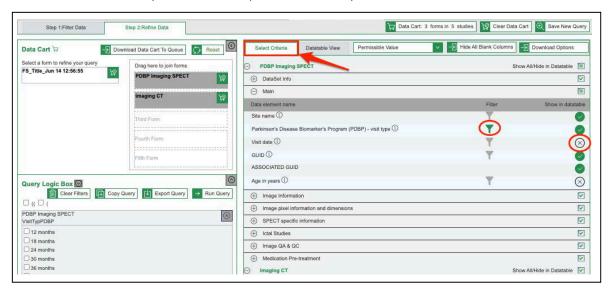


# **SECTION 7.3: REFINE THE DATA**

The Query Tool allows users to refine the data by using both the Select Criteria Section and the Query Logic Box. The Query Tool is designed to conduct advanced Boolean searches.

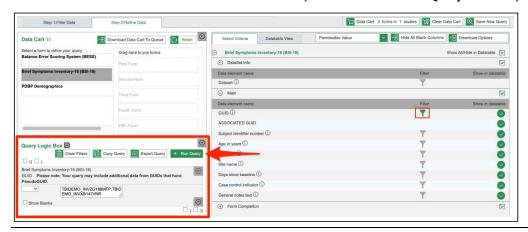
The advance Boolean search allows users to use "AND," "NOT and "OR" to link multiple queries.

- 1. To use the refine features of the **Query Tool,** choose data elements to apply a filter to. This process can be done in the **Select Criteria** view or the **Datatable View**.
  - a. In the **Select Criteria** view, select the Filter symbol for the Data Element you wish to be filtered.
  - b. You can remove (or re add) elements by clicking the green check-mark (to remove) or click the x (to add it back in)



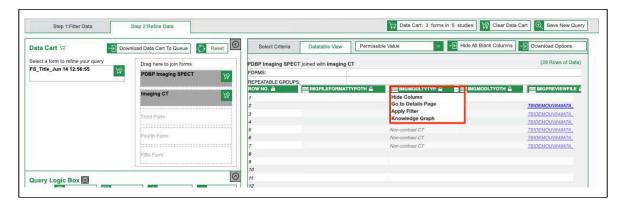
**NOTE:** If you used the **GUID Search** in **Step 1: Filter Data** then you will see a filter auto added in the Query Logic Box for the GUID(s) you had searched for.

**IMPORTANT:** Your data will not be filtered by default. Click **Run Query** to filter your data.

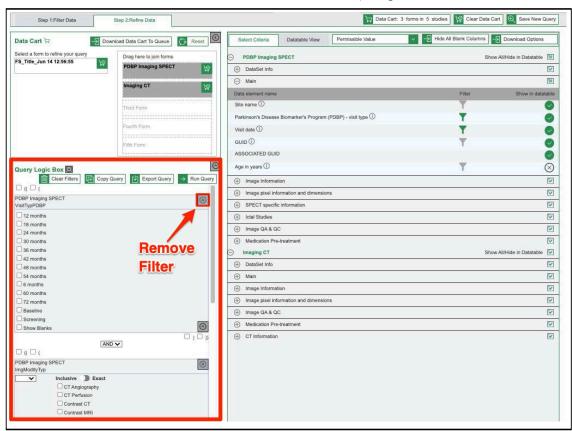




c. In the Datatable View, click on the hamburger menu for a **Data Element** and click on "**Apply Filter**."



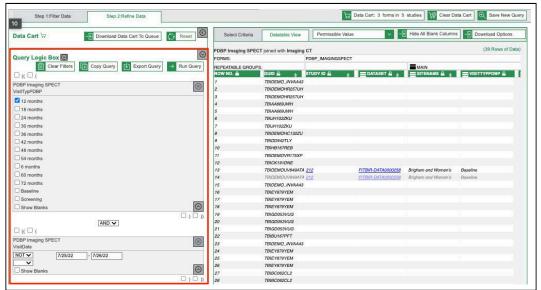
In both cases, the **Data Element** will appear in the **Query Logic Box** on the bottom left:



**NOTE:** To remove a filter, click the **cancel icon** (circle with an x in it) at the top right of each filter under the **Query Logic Box.** 



2. Once the Data Elements have been added to the Query Logic, the Boolean capabilities can be applied.



3. There are specific Boolean Logic operations that can be applied to each data type:

Data Type	Requirement Type	Boolean Logic
Alphanumeric	<ol> <li>Single Predefined</li> <li>Multi-Defined</li> <li>Free Form</li> </ol>	OR, NOT, AND
Numeric	<ol> <li>Single Predefined</li> <li>Multi-Defined</li> <li>Free-From</li> </ol>	OR, NOT, AND  NOTE: Ranges can only use: OR, NOT
Date	Free Form	OR, NOT
GUID	Free Form	NOT
File	Free Form	OR, NOT, AND
Thumbnail	Free Form	OR, NOT, AND



Biosample	Free Form	OR, NOT, AND
Tri-Planar	Free Form	OR, NOT, AND

#### Inclusive/Exact Search

The Inclusive/Exact Search capability is available for the data types: (1) Alphanumeric, (2) Filename, (3) Thumbnail, (4) Biosample, and (5) Tri-planar.

- 1. By default, the inclusive search is performed for data types with the requirement types Free Form and Multiple Pre-Defined Select.
- 2. Use the toggle button to switch between the search type.
- 3. When Inclusive is chosen, the search results will provide all the GUIDs that include the search term. For example, when using the Data Element RaceUSACat, if the user is looking for individuals who are Asian, the results will show all GUIDs for subjects who are Asian, regardless of whether they are also another race as well.
- 4. When Exact is chosen, the search results will provide all the GUIDs that have only the search term. For example, when using the Data Element RaceUSACat, if the user is looking for individuals who are Asian, the results will only show GUIDs for subjects who are only identified as Asian and not any other race in addition to that.

#### **MultiRace**

The RaceUSACat Data Element has the option to show GUIDs with multiple races.

- 1. Choose the Data Element RaceUSACat to be filtered.
- 2. In the Query Logic Box, scroll down to the "Show multirace Data" box.
- 3. Click on the "Show multirace Data" box and then Run Query, and all GUIDs with multiple races will appear.

NOTE: Inclusive/Exact Search and MultiRace is not available in all BRICS instances.

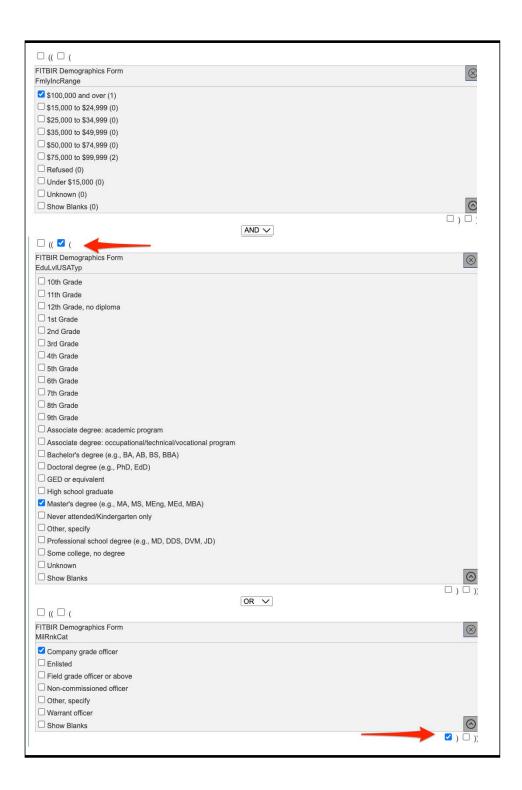
#### Using parentheses in the Query Logic box.

You can use parentheses to do more complicated queries such as the following example (photos on next page):
We want subjects with a family income range of \$100,000+ AND (they have at least a masters degree

OR

they were a company grade officer.)





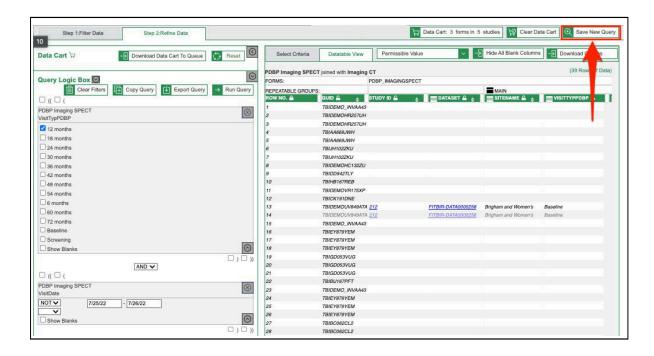


# **SECTION 7.4: SAVE QUERY**

#### Create a Defined Query

After refining the data using the filter capabilities, users are able to save the query, which can be stored in both Meta Study and Query Tool.

1. To save a Query to the Query Tool, click on the Save New Query button.

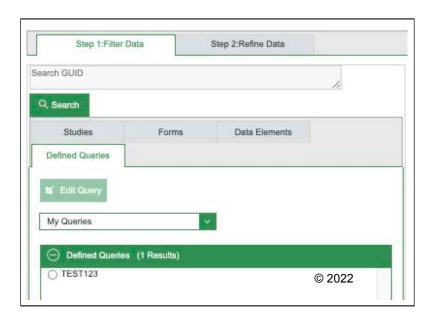


2. The Save New Query will provide a pop-up box to provide information for the query: (1) Name for Query, (2) Description for Query, and (3) Users to grant permission access to the Query.



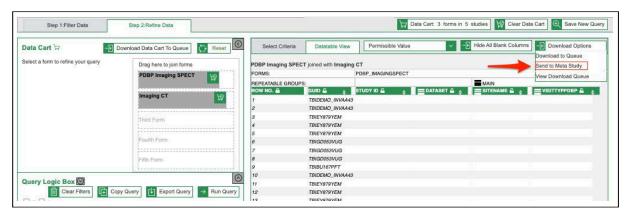


3. Once you have saved a new query, you can find it under Step 1: Filter Data > Defined Queries > My Queries



# Save Query to Meta Study

1. To save a Query to the Meta Study, hover over Download Options, and click on Send to Meta Study.





2. Once the Send to Meta Study is clicked, a pop-up box will appear to provide information about the Query. Complete the information in the pop-up box then click Save.

Note: The user should create a Meta Study before saving a Query.

