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Chapter

10

Submission Tools

CHAPTER 10 – SUBMISSION TOOLS

The **Submission Tools** are comprised of the **Data Validation** and **Upload Tools**, which assist researchers with the validation and upload of data into the repository. The validation component verifies that submitted data conforms to the required format and range values defined in the **Data Dictionary**. **Note:** In certain BRICS instances, extra-validation rules are applied (See Appendix). The tool references the **Data Dictionary** and validates the data associated with the files identified by the user for submission into the **Data Repository**. It provides a report of any data discrepancies in the form of errors and warnings. The errors highlight when data does not conform to how that field has been defined. If errors are found, a submission package cannot be created. After successful validation, a submission package is created which allows the data to be submitted to the system with the upload component. The **Submission Tools** are available to users in a browser-based **JavaScript** version that will launch within the website.

To ensure the quality of uploaded data and to make data easy to query, data should be submitted in a specific format and range values should comply with the values defined in the **Data Dictionary**. It is critical to understand the specific format that is defined by the data elements and form structure you are submitting your data against. All submitted research data must be validated against the values defined in the **Data Dictionary** prior to submission. The form structure templates serve as the template for data submission. To facilitate this process, we provide the **Data Validation Tool** that assists researchers with the validation of their data.

The tool accepts CSV files from a researcher and validates the files' contents against the values defined in the **Data Dictionary**. These CSVs must be in the form of the form structure templates available within the **Data Dictionary**. CSVs of data exported from an external system, such as REDCap, that have not been formatted to match the form structure templates will not be recognized by the validation tool. For those CSV files that pass validation, the **Data Validation Tool** creates a submission ticket and submission package. After that, data are ready for uploading. The submission ticket is used by the **Upload Tool** to upload the data (in the form of a corresponding submission package) to the **Data Repository**.

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10.1 System Requirements

The **Data Validation Tool** and **Upload Tool** are available within the **Data Repository** module as part of the **Submission Tools** page. You will use the Submission Tool from within your web browser.

10.1.1 Tool Input and Output

Tool Input:

- CSV files with clinical data or imaging metadata that conform to the form structure templates from the data dictionary.

Tool Output:

- A submission package in the Data Upload Tool
- An error log with validation errors and warnings (if any).

10.1.2 CSV Checklist

Before populating the form structure template in the form of a CSV file with data, check the downloaded template for the following:

- Ensure there are no edits to the template and that the form has not changed since it was downloaded.
- All **data elements** needed to capture data are included into the CSV file (and the form structure).
- The **form structure** short name is entered in the cell A1 in the CSV file.
- The **Main** group (with all data elements) is present in the CSV file.
- The group (if any) and data element names are the same as in the FS.

After verifying the above, ensure the following before submission:

- The column A, starting from the A3 cell has no data, but has marks (x) that represent the beginning of a new record.
- The columns that correspond to required DEs in the FS are populated with data (e.g., Main.GUID).

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10.1.3 Validation Warnings

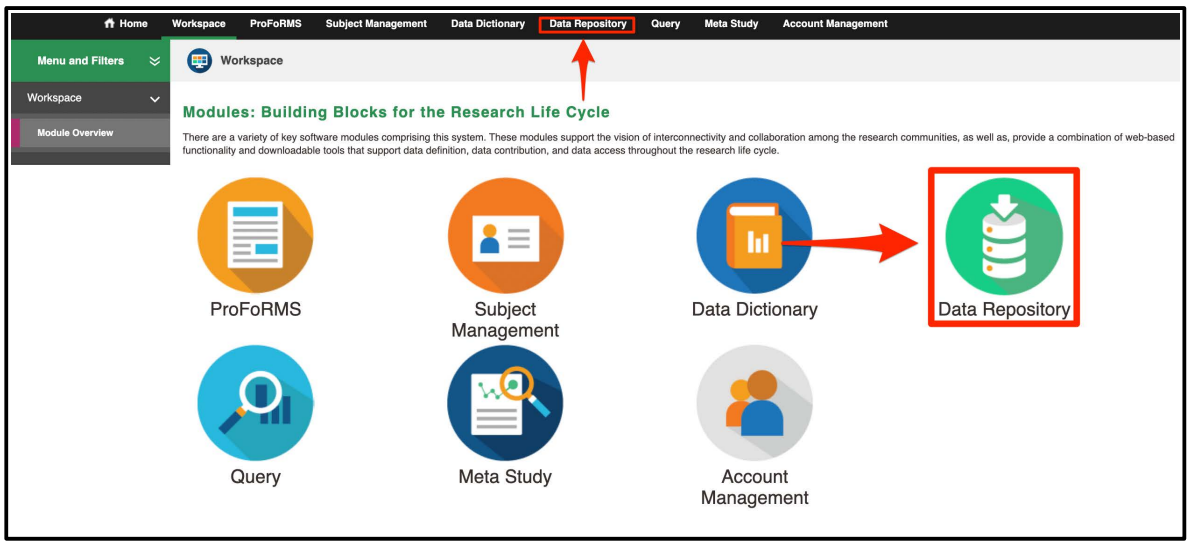
- If any validation errors or warnings are found, the tool provides a detailed report of any data discrepancies, errors, and warnings received.
- Validation warnings are just warnings and they do not prevent the creation of the submission package. If any validation errors are found, however, a submission package cannot be created. In that case, you should first edit the data to fix all errors, and then re-validate the data.

10.2 Data Validation Tool

The **Data Validation Tool** is available within the **Data Repository** module as part of the **Submission Tools**. For steps downloading the CSV template, refer to the **Data Dictionary** module user guide.

10.2.1 Running the Data Validation Tool

1. Log into BRICS, and navigate to your Workspace where all modules you have access to are displayed. NOTE: If the module is greyed out, then you do not have access to the module. Please reach out to BRICS Operations to inquire about access should you not have access.



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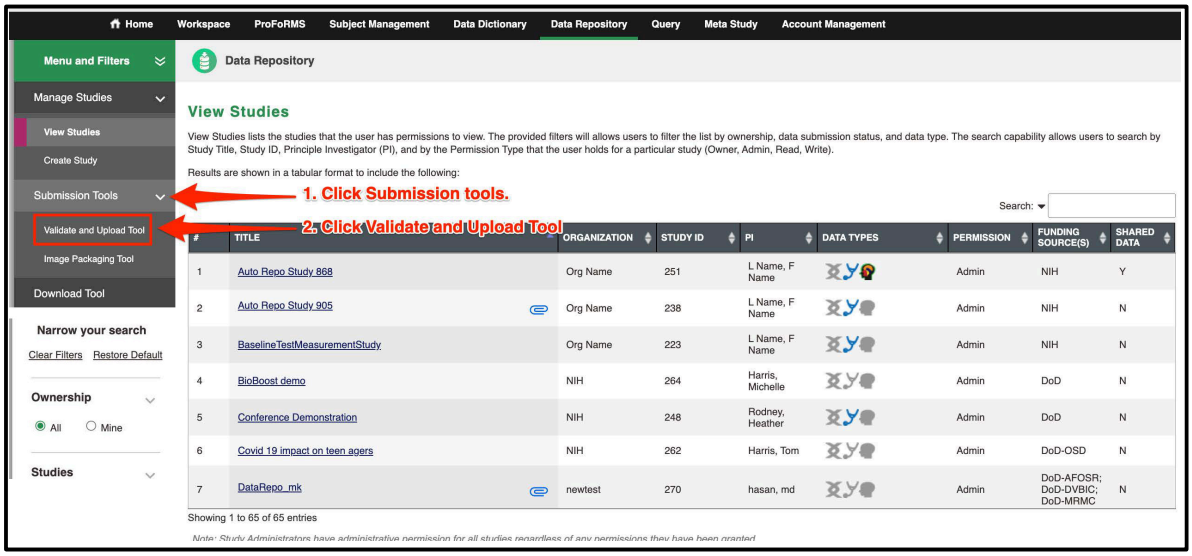
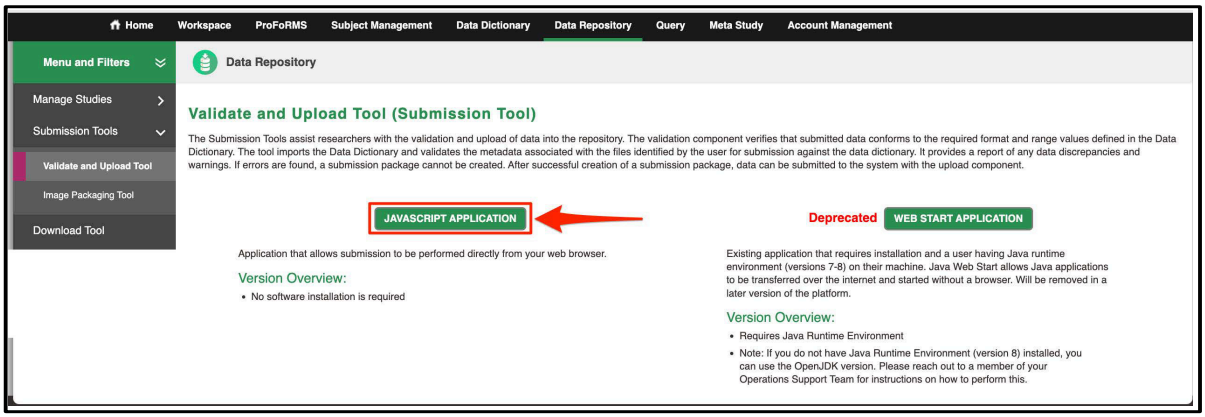
2. Click the **Data Repository** module from your Workspace.
3. Click the **Submission Tools** on the left-side menu.



4. The **Validate and Upload Tool** window appears. Click the **JAVASCRIPT APPLICATION** button.



NOTE: Currently there is the JavaScript application and the Java Web Start Application. Support for the **Java Web Start Application** has been **deprecated**. Please use the **JavaScript Application.**

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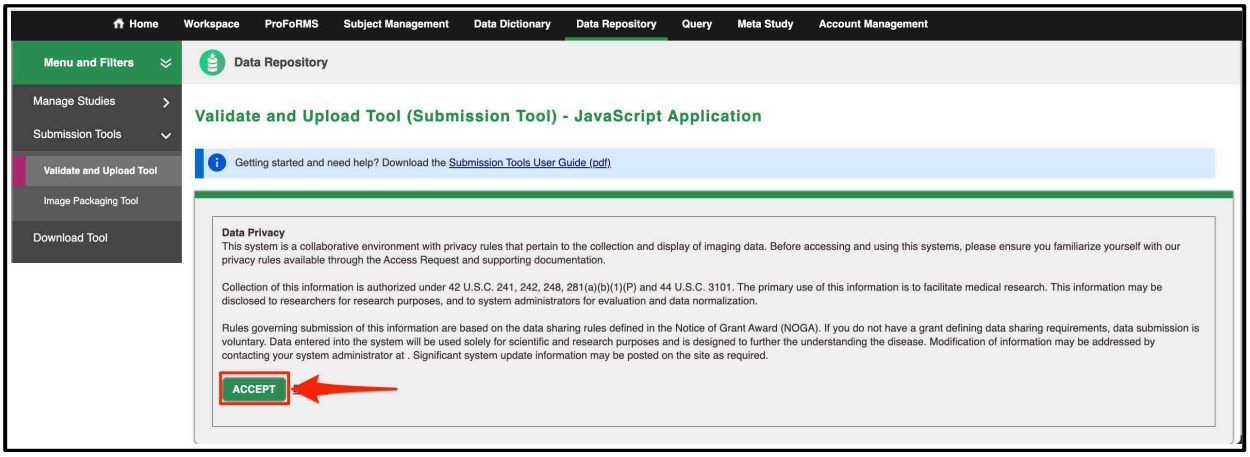
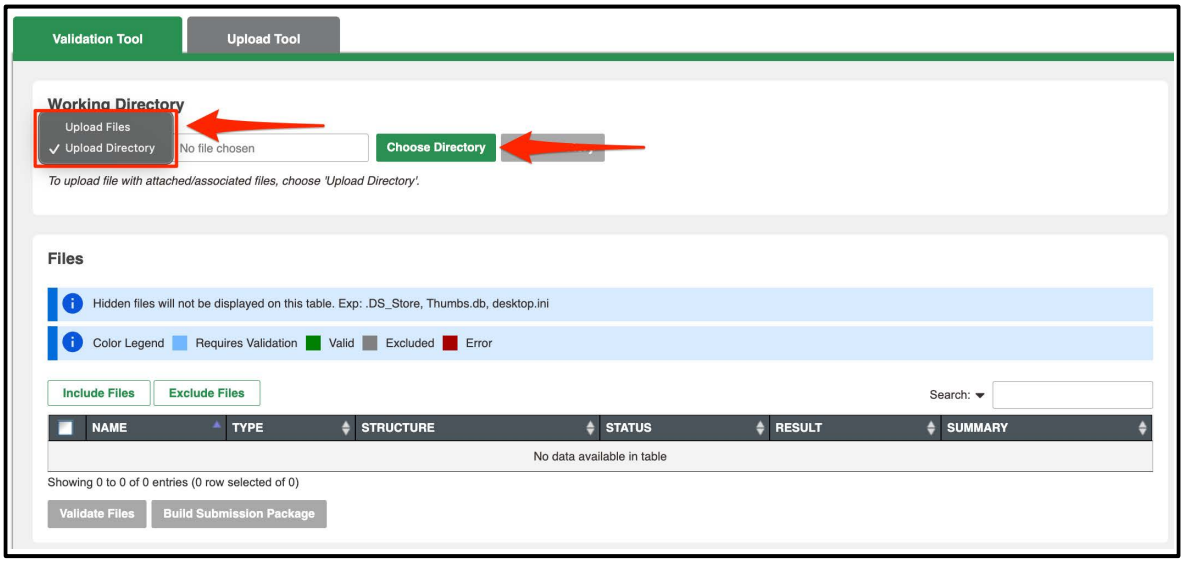
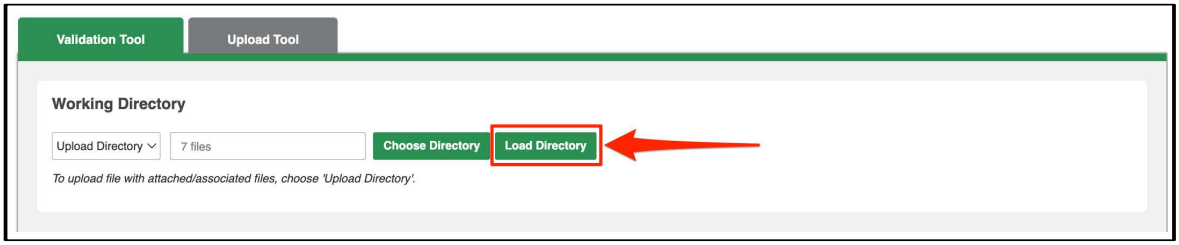
5. Read and Accept the Data Privacy rules.



6. The Validation Tool will open. Choose Upload Directory/Upload Files:
Select Upload Directory if you wish to upload a folder.
Select Upload Files to upload files individually.
Select Choose Directory to browse for the desired files to upload.



7. **Select Load Directory** to upload the chosen files.



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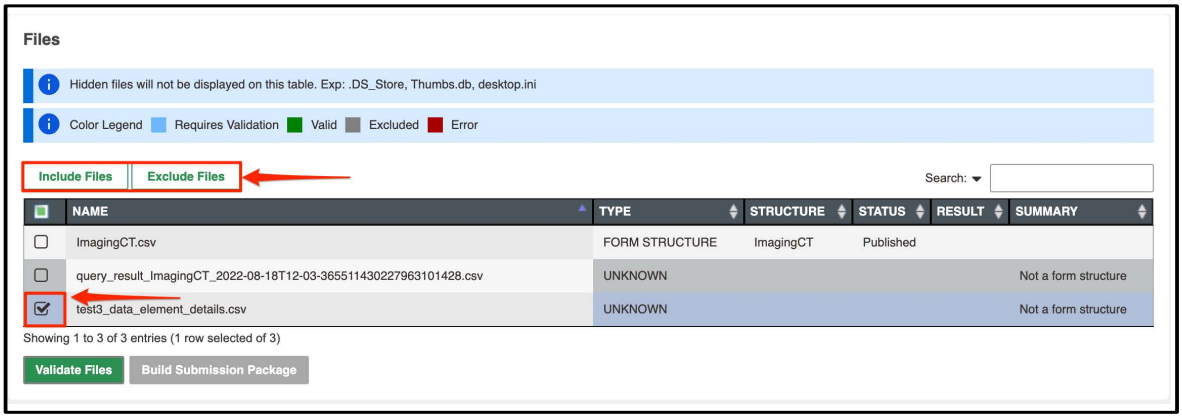
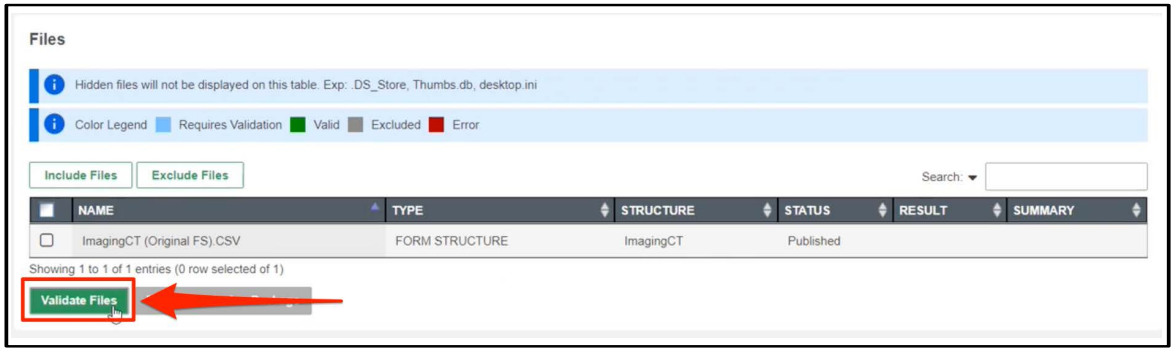
Including/Excluding files from validation:

8. After uploading your files. They will appear in the files table. If you wish to exclude any files then select checkbox on the files you wish to exclude and click the **Exclude Files** button. If you exclude a file and afterwards wish to include it instead, then select the checkbox on the excluded file and then click the **Include Files** button.



9. After uploading your files. They will appear in the files table. Click **Validate Files** to run a validation check on your uploaded files.
NOTE: If you did not upload a Form Structure into the table then you cannot click Validate Files.



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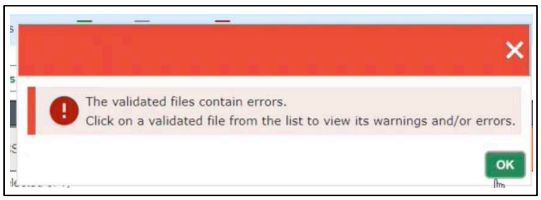
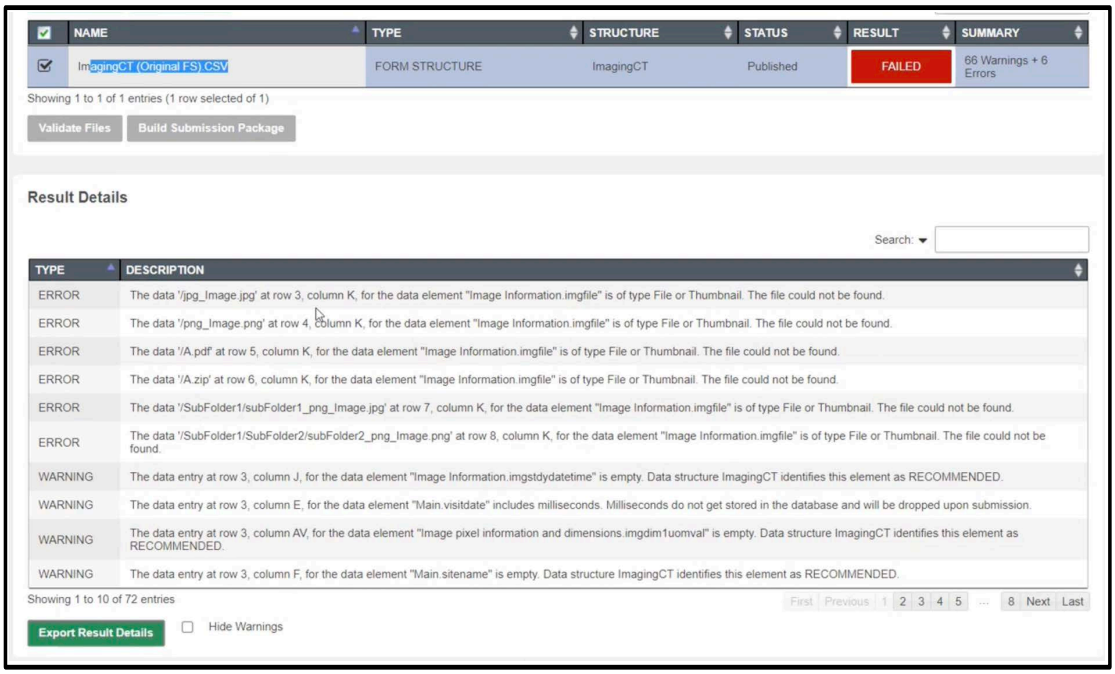
10. If their are any validation errors you will receive an error message. Click **OK**.
To see the erros/warnings click on the File(s) with errors/warnings you wish to view under the **Files section.**
The errors/warnings will be displayed in the **Result Details table**. You can download the result details using the button below the table: **Export Result Details** button.
See 10.2.2 for error logs and fixing error messages. See 10.2.4 for best practices.





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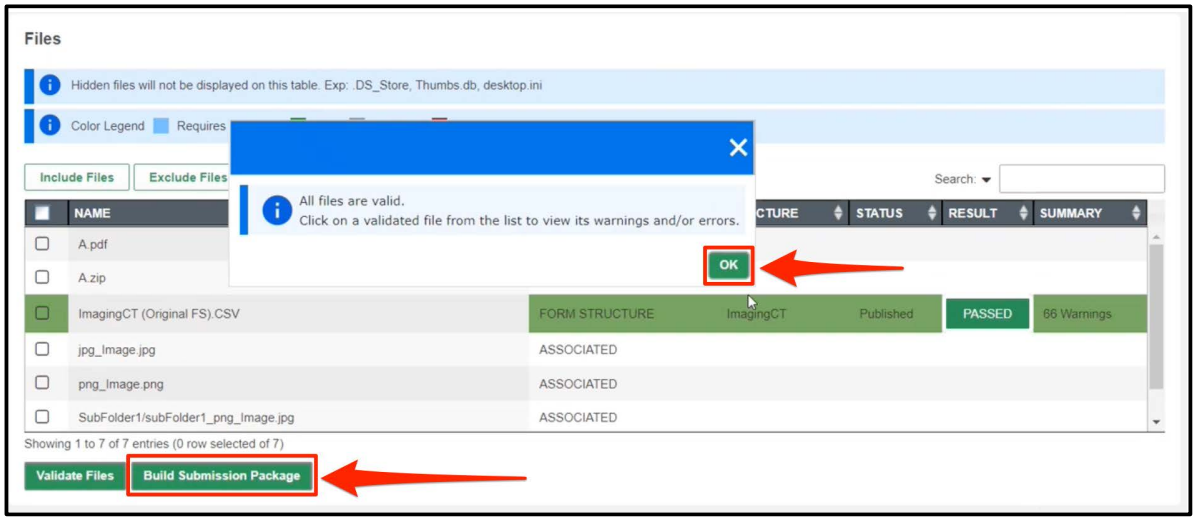
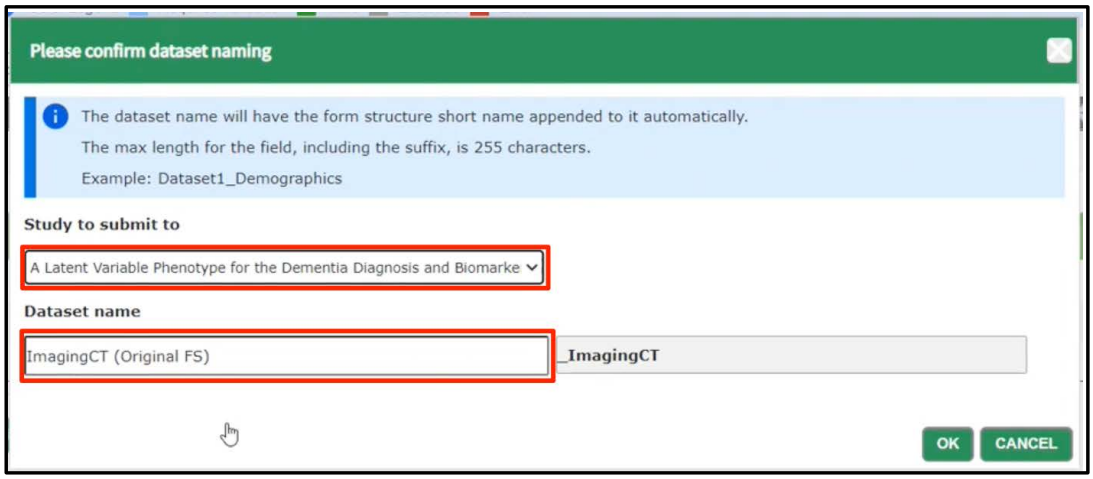
11. After fixing all errors. Re-upload your changed files and validate again using the prior steps. You will receive a different message stating, All files are valid. Click **OK** to close the message. Then click **Build Submission Package**.
NOTE: The files may pass validation but still have many warning messages.



12. A modal screen will open for you to confirm the dataset naming. First Select the **Study to submit to**. You can only submit to studies in which you have write permission.
Input the dataset name.
The box in the bottom right is the form structure you're uploading to and is not editable.



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10.2.2 Error Logs and Warnings

If you have no errors then you can skip to the step 11.

Validation errors and warnings appear in the **Result Details** table. Files with only warnings can be submitted. Files with errors must be fixed and re-validated, and then resubmitted for another validation round.

Validation errors appear when a CSV file has entries that are:

- In different format (other than defined in the data dictionary for this data element),
- Not listed among permissible values for this particular data element,
- Left empty, but defined as required in the form structure,
- Have more than 1 permissible value separated by a semicolon ";" but the data element is not set to be a multi-select.
- Do not pass extra-validation rules (See Appendix for a list of forms with extra-validation rules)

NOTE: Validation errors mostly appear when a data entry, which was defined as required in the corresponding form structure, is missing in the CSV file.

10.2.3 Fixing Validation Errors

Validation errors and warnings appear in the Result Details table. Files with warnings can be validated. However, files with errors must be fixed and re-validated, and then resubmitted for another validation round.

Validation errors and warnings can be exported into a text file - that makes working with them and fixing errors much easier. To export validation errors or warnings, or both:

1. Click the **Export Result Details**.
2. In the Save dialog box that appears:
    a) select a directory where you would like to save validation logs,
    b) specify what types of error log entries you would like to export. These could be a) both errors and warnings (recommended only for smaller log files),
    c) errors only (recommended), or c) warnings only.
3. Type in your own file name and Click **Save**.
4. The log file will be saved in the designated directory under the chosen name.

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10.2.4 Best Practices

By default, an error log file is created and stored in the same directory as your working files. We recommend that you create a designated error log directory and save validation logs there.

By default, an error log is saved under the "resultDetail.txt" name. We commend that you choose your own file name for an error log and that the name is somehow related to the name of your data file. E.g. if you have a data file, let's say "MyData.csv", you give the corresponding error log file the following name "MyDataErrorLog.txt".

After you have exported all validation errors:

1. Open the log file in a text editor (MS Word, Notepad, Crimson, Notepad++ - all these will work).
2. Open your CSV file in MS Excel or your preferable text editor that can work with CSV (not MS Word!).
3. Go through each entry in the error log and fix it in the CSV file. Save changes in the CSV file. Make sure you saved it as CSV. Some of these changes may require additional review and consultation with your principle investigator. If you have an error for data that you cannot change, please reach out to your BRICS point of contact.
4. Re-validate the fixed CSV file. Make sure that all errors are gone.
5. Create the submission package.

If you received numerous validation errors, we recommend that you work on fixing them in batches. Fix a few errors, save the fixed CSV file and re-run it through the **Data Validation Tool**. It will still give you a lot of errors, but we hope it would be fewer that before. Save the new error log and go through it fixing a few more errors. Re-run validation. Repeat these steps until you get 0 (zero) errors.

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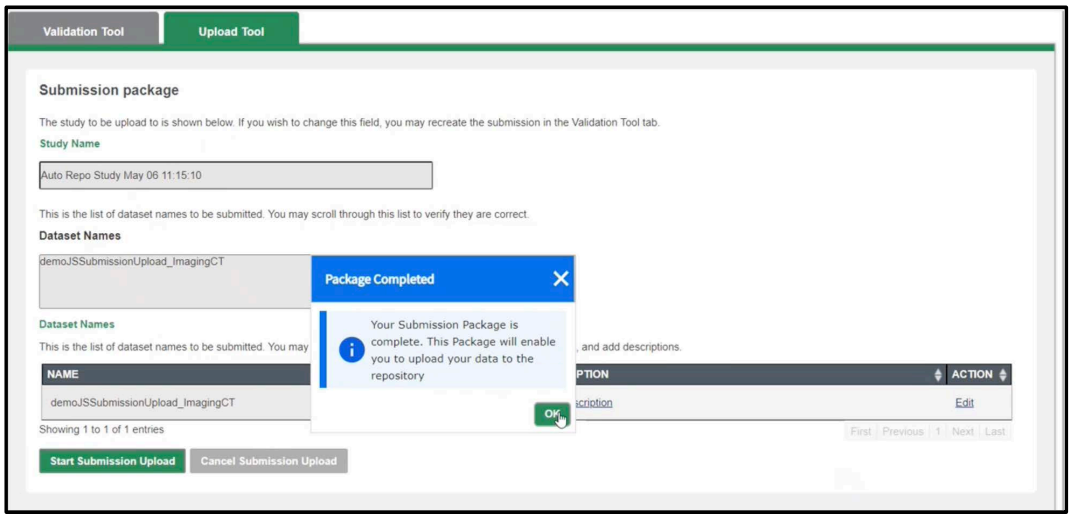
10.3 Data Upload Tool

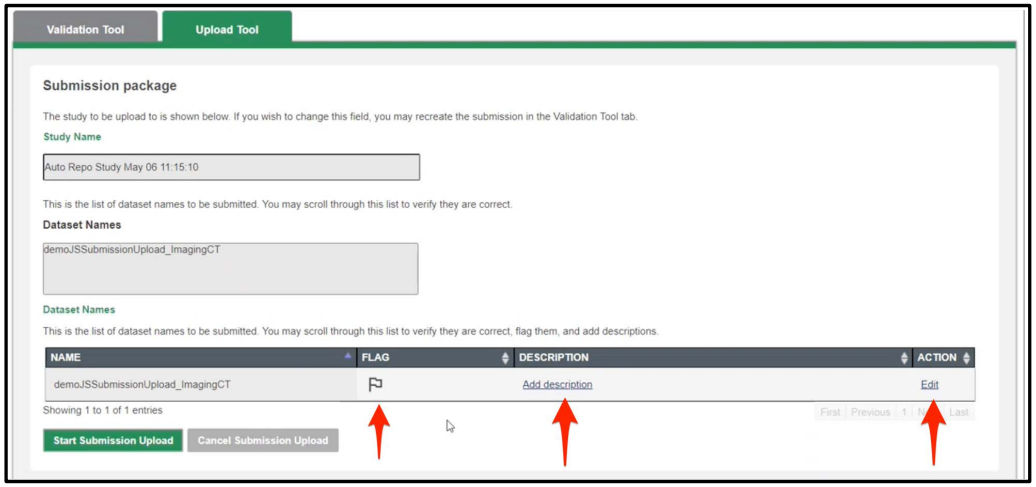
The **Data Upload Tool** will open after Building a submission package using the **Data Validation Tool.**

10.3.1 Running the Data Upload Tool

1. After completing use of the Validation Tool. The Upload Tool will open with the following message. **Click OK to continue.**



2. You will see the Submission package. Here you can see the Study Name and the Dataset Names. You may add a flag and/or description to your uploaded data.
NOTE: If you **flag** a dataset you **MUST** also add a description.
Click Save under the ACTION column on the table after flagging or adding a description.



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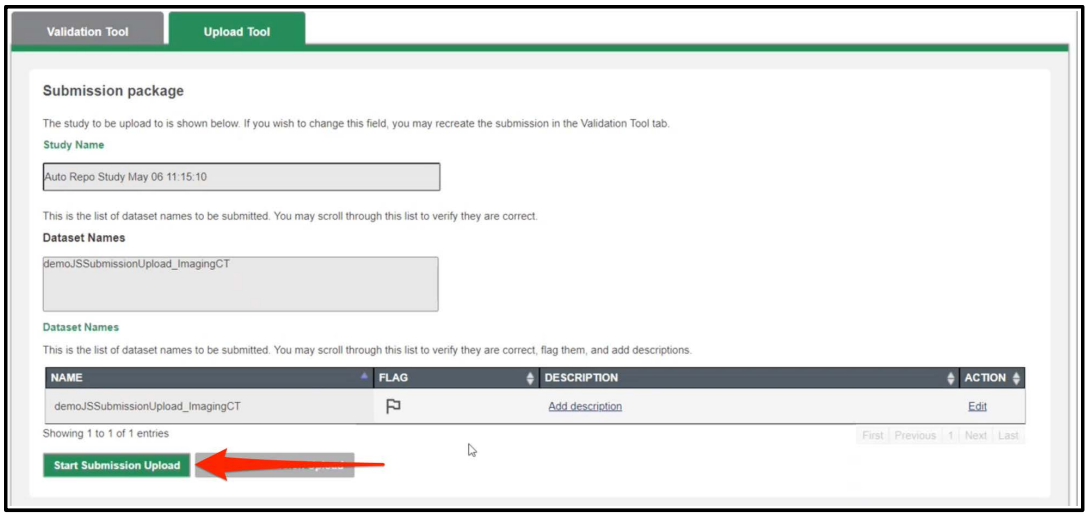
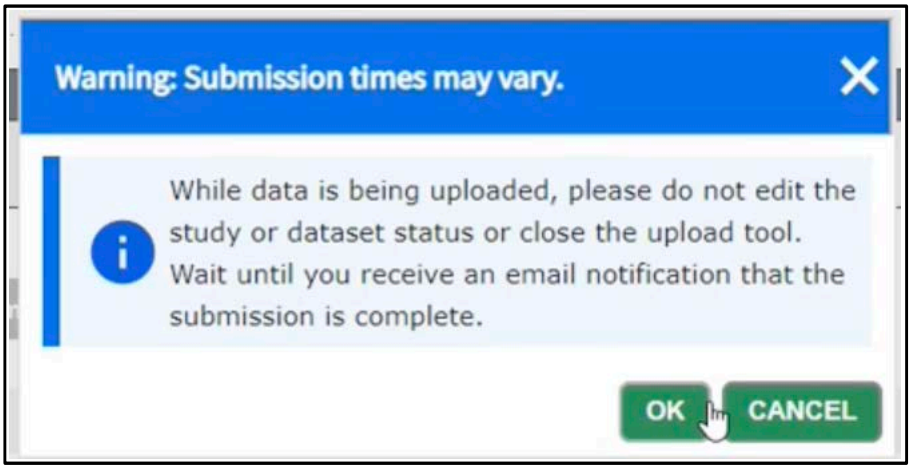
3. After adding any flags/descriptions and saving them. To start your Submission Upload click **Start Submission Upload.**



4. You will get the following message telling you that upload times may very and not to edit the study/dataset status or close the upload tool.
Click **OK** to continue with the upload.



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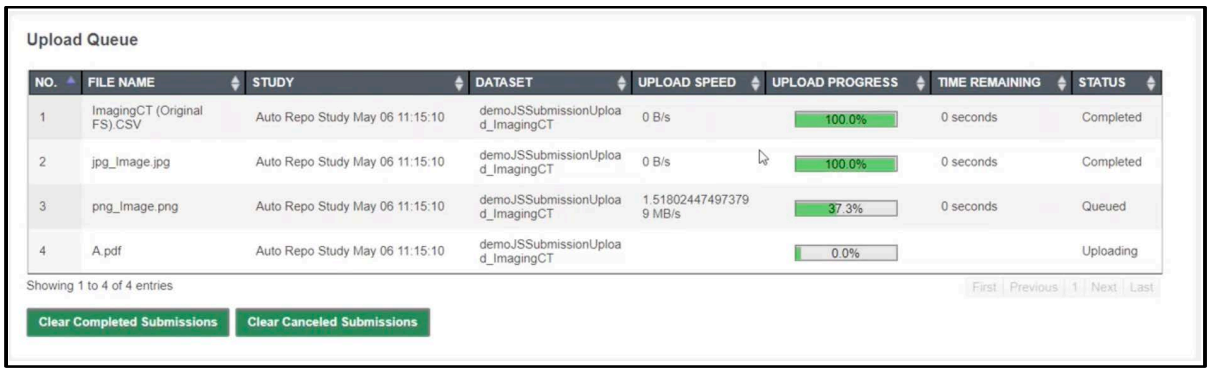
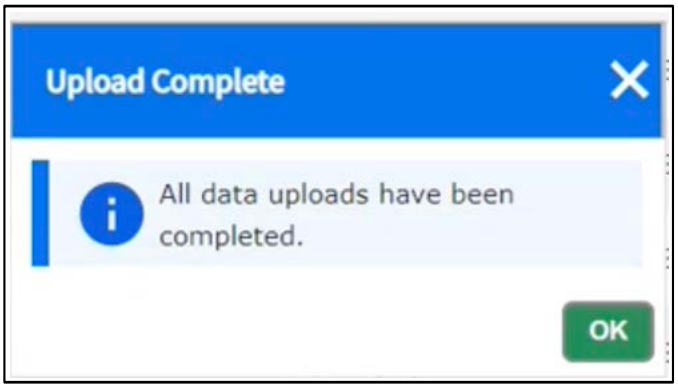
5. Afterwards the upload will being and you can view its progress in the **Upload Queue.** Do not close the upload tool while it is still in progress. Wait until you receive a complete update message.



6. After your upload is complete. You will receive the following message:
NOTE: If your upload failed for any reason. Please contact the Ops team for help with the error.



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10.3.2 Best Practices

After submitting the data, to make sure that your dataset appears under the study you selected:

1. Navigate to the **Data Repository** -> View Studies page.
2. Find your study on the study table. NOTE: 3 icons located in the Data Types column. If your study has any data submitted, at least one of the icons appears in color.
3. Select the study and click on the study name to open the Study Overview page.
4. On the study page, click on the "+" sign next to Dataset Submissions.
5. The table that contains all submitted datasets opens. Make sure that your dataset is listed in this table.
6. Contact the BRICS System Administrator if you do not see the data you uploaded

The data types associated with a study are represented by three icons:

1. **Double helix** - represents genomics data;
2. **Stethoscope** - represents clinical assessment data;
3. **Head profile** - represents imaging data.

If the icons next to the study name are highlighted in color, the study has datasets of the highlighted types.

ICON KEY

Notes

Important Information

Things to Note:

- You can only upload data to the studies you have the data upload permissions.
- To make sure that the most recent list of studies is available for you, use the Refresh button to update the list of studies.
- The name assigned to the uploading dataset must be unique for the selected study.

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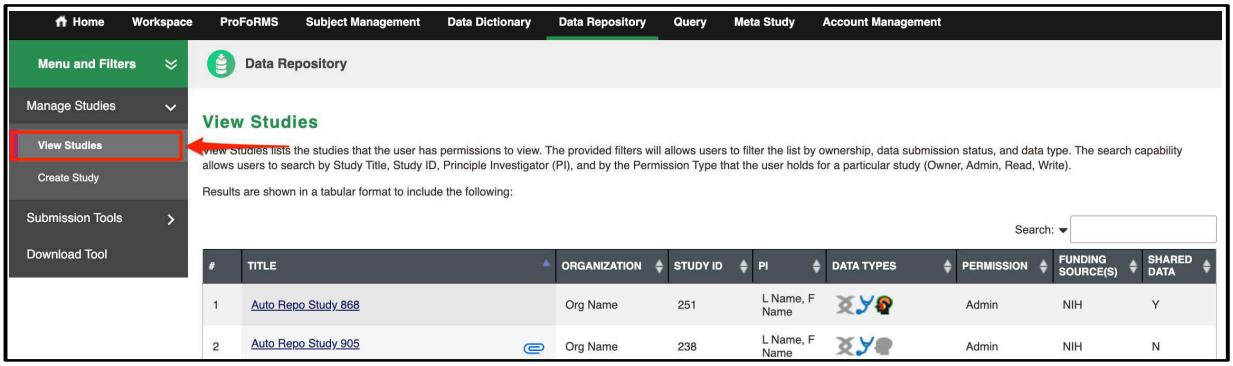
10.3.2 Adding Submitted Data to the Download Queue

The Data Download feature helps users to select and download datasets from the data repository to their own computer systems. Users may select datasets to download by placing them in their Download Queue (see below). Then, using the **Download Tool**, users may download selected datasets from the repository to their own systems.

To Populate Download Queue**:** Perform the following actions:

1. Navigate to the **Data Repository** module

2. The **View Studies** page should load. If not select it on the left-side tool bar under **Manage Studies**.



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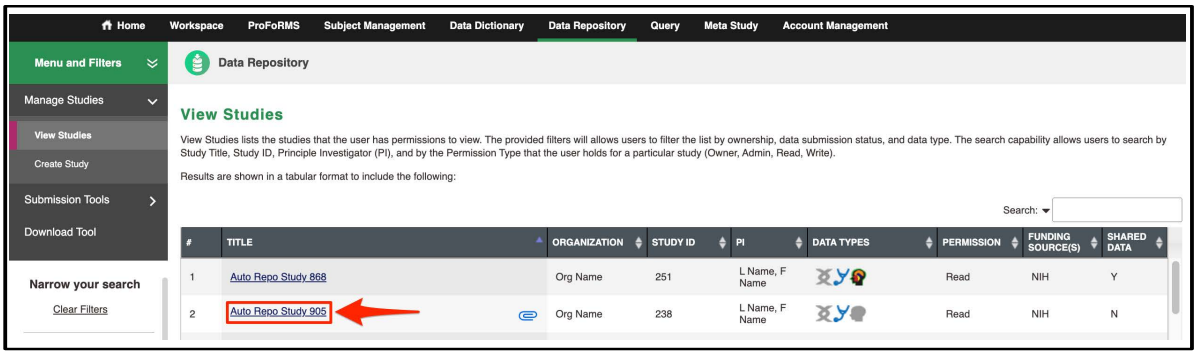
3. Select the **Study** from which you wish to download a dataset by clicking on the **Study Title**.
   Note: View Studies lists the studies that the user has permissions to view. Use the filters and search filter to find the study you're looking for.



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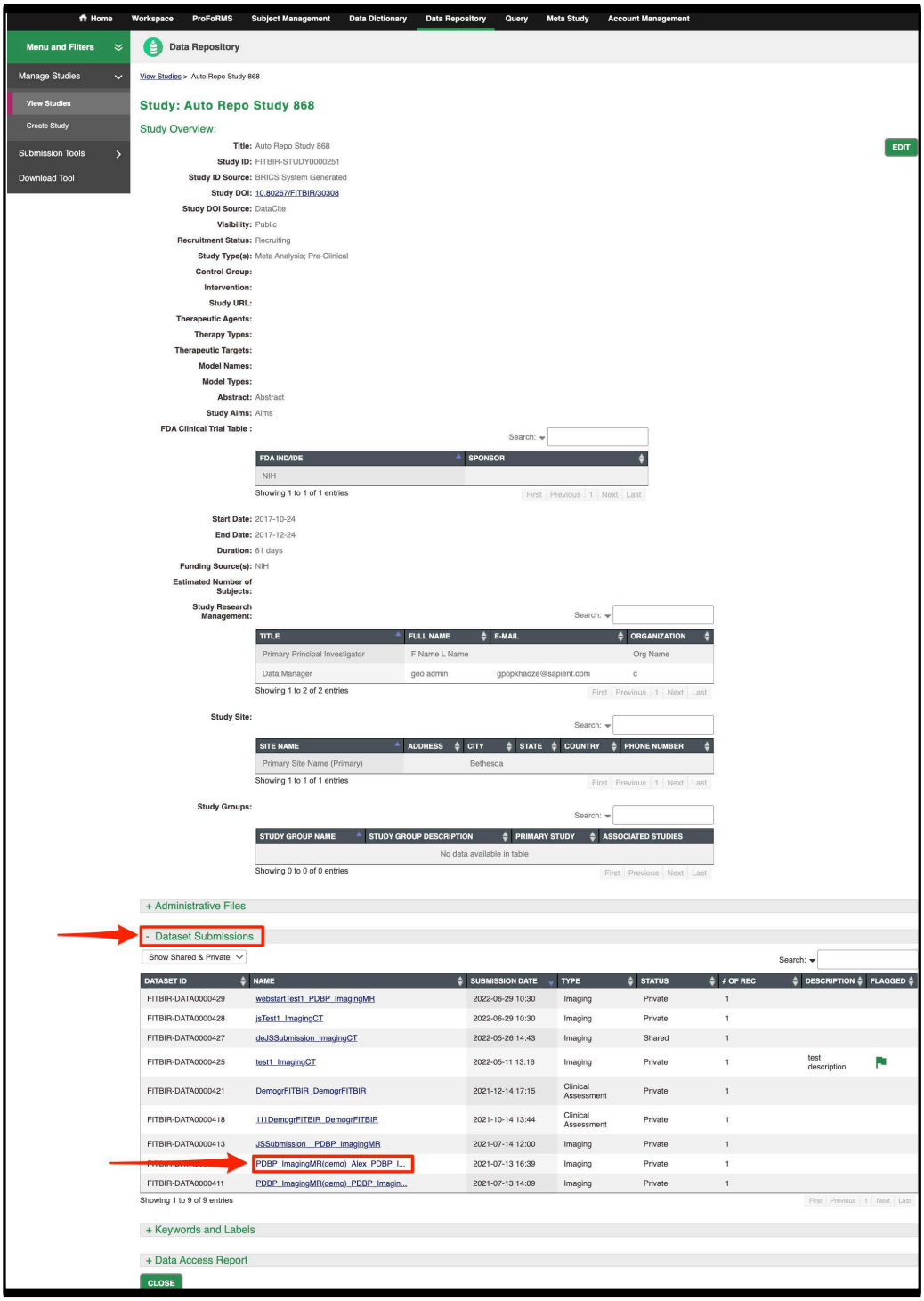
6. Click on the + next to **Data Set Submissions** to expand the Data set submission table.

7. Select the **Dataset** you wish to download by clicking on its name. A **pop-up** window opens with information regarding the dataset.



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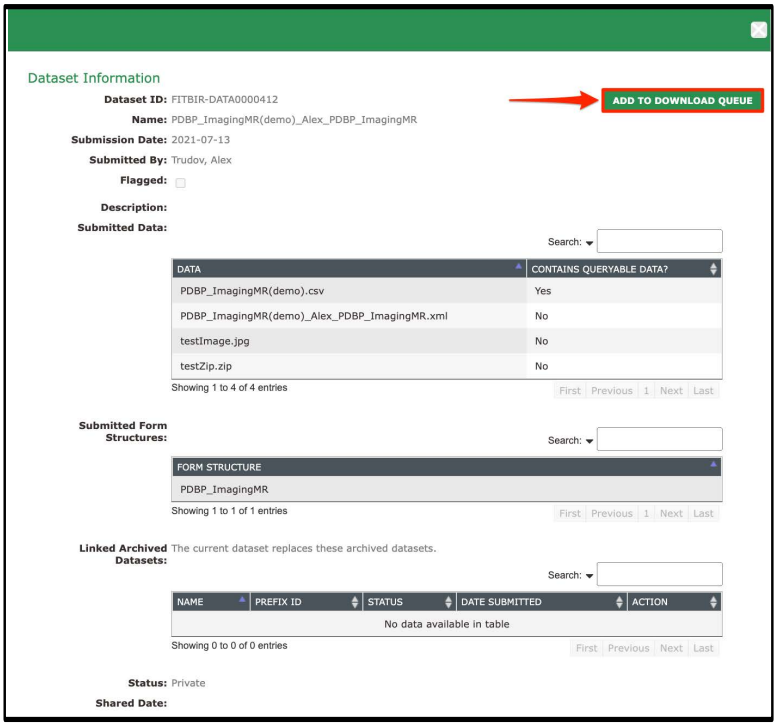
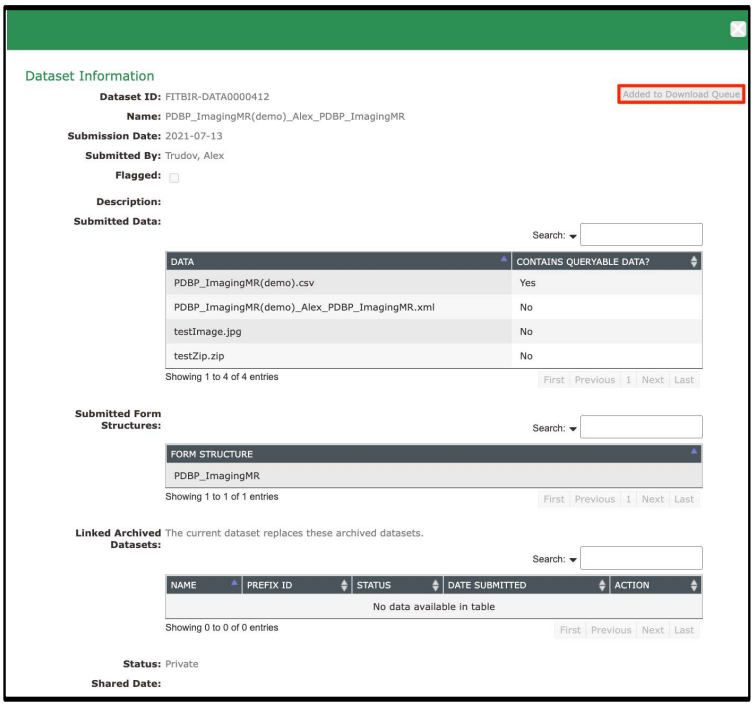
8. Click **Add To Download Queue**.



9. The Dataset is **Added to Download Queue**. After the data is available in the download queue you will receive an email labeled: **"Requested data is now available in the Download Manager".**



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APPENDIX: EXTRA-VALIDATION RULES

In select instances of BRICS (FITBIR), extra-validation rules have been incorporated into the **Validation Tool** for a subset of standard forms in the Data Dictionary. **Note**: this is in addition to the baseline validation checks that apply to all forms. Validation rules for additional standard forms will be added with future updates. The Extra Validation rules were developed based on the scoring guidelines and algorithms of the standard forms. The Extra Validation rules will provide an additional quality check for users when submitting data, therefore providing better quality of data for the TBI research community.

The Validation Tool will check for:

a) Submitted summary scores that have been miscalculated.
b) Submitted Summary scores with missing item level data.
c) Submitted completed item level data with missing summary scores.
d) Submitted age inputs not meeting the age requirement for the form

If any extra-validation errors are found, a submission package cannot be created. The error log will inform you of the specific extra-validation rules that are not met and where in the CSV they are located. You should edit the data to fix all errors, and then re-validate the data

Extra-validation rules were created uniquely for the form structures listed below:

1. **Alcohol, Smoking, and Substance Use Involvement Screening Test (ASSIST)**
2. **Alcohol Use Disorders Identification Test - Consumption Questions (AUDIT-C)**
3. **Alcohol Use Disorders Identification Test: Self-Report Version (AUDIT)**
4. **Balance Error Scoring System (BESS)**
5. **Barratt Impulsiveness Scale (BIS-11)**
6. **Beck Anxiety Inventory (BAI)**
7. **Beck Depression Inventory II (BDI-II)**
8. **Brief Symptoms Inventory-18 (BSI-18)**
9. **Brief Visuospatial Memory Test - Revised (BVMT-R)**
10. **Controlled Oral Word Association Test (COWAT)**
11. **Deployment Risk and Resilience Inventory (DRRI-2), V2 Combat**
12. **Disability Rating Scale (DRS)**
13. **Dizziness Handicap Inventory (DHI)**
14. **Drug Abuse Screening Test (DAST-10)**
15. **FIM Instrument**
16. **Glasgow Coma Scale and Pupils (GCS)**
17. **Glasgow Outcome Scale - Extended (GOS-E)**
18. **Pediatric Glasgow Outcome Scale - Extended (GOS-E Peds)**
19. **Grooved Pegboard Test (GPT)**
20. **Headache Impact Test (HIT-6)**
21. **Immediate Post-Concussion Assessment Testing (ImPACT)**
22. **Insomnia Severity Index (ISI)**

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23. King-Devick Concussion Screening Test
24. Mayo-Portland Adaptability Inventory-4 (MPAI-4)
25. Movement Disorder Society - Unified Parkinson's Disease Rating Scale (MDS-UPDRS)
26. Montreal Cognitive Assessment (MoCA)
27. Neurobehavioral Symptom Inventory (NSI)
28. Patient Health Questionnaire - 9 (PHQ-9)
29. Pittsburgh Sleep Quality Index (PSQI)
30. Post-Concussion Symptom Inventory - Parent (PCSI-P)
31. Posttraumatic Stress Disorder Checklist - Civilian Version (PCL-C)
32. PTSD Checklist for DSM-5 (PCL-5)
33. Quality of Life After Brain Injury - Overall Scale (QOLIBRI-OS)
34. Rivermead Post-Concussion Symptoms Questionnaire (RPQ)
35. Satisfaction with Life Scale (SWLS)
36. 12-Item Short Form Health Survey Version 2 (SF-12v2)
37. 36-Item Short Form Health Survey (SF-36) version 2
38. Trail Making Test (TMT)
39. Vestibular/Ocular Motor Screening (VOMS)

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