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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.

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).

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.

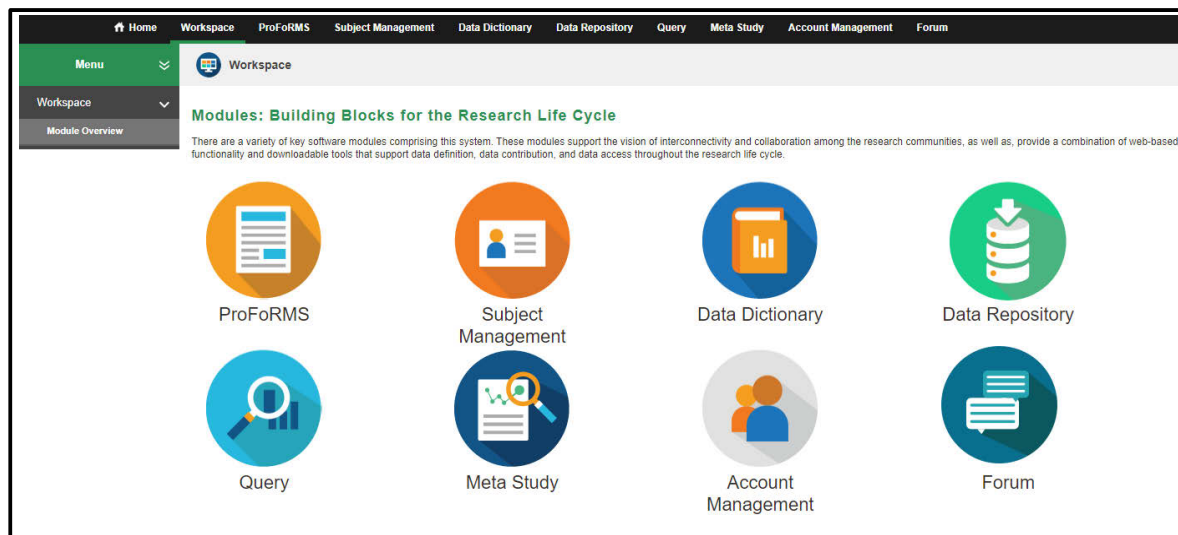
10.2 DATA VALIDATION TOOL

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.

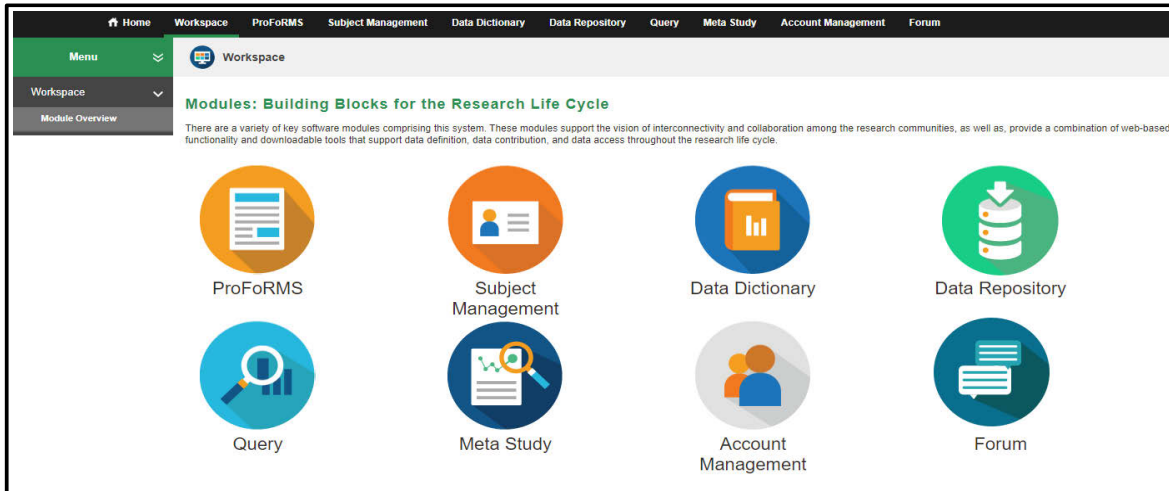
10.2.1 Running the Data Validation Tool

1. Log into BRICS, and navigate to your Workspace and select the Data Repository tab or icon.

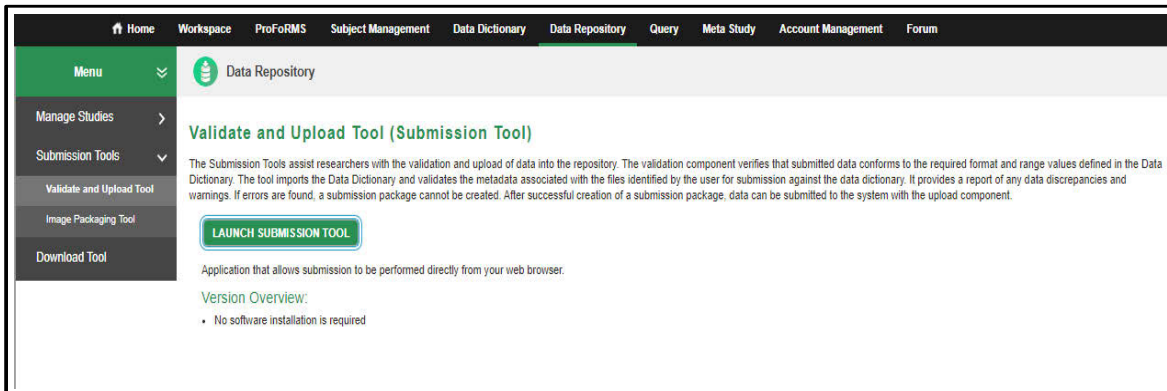
NOTE: If the module is greyed out, then you do not have access to the module. Please reach out to BRICS Operations to inquire about access.



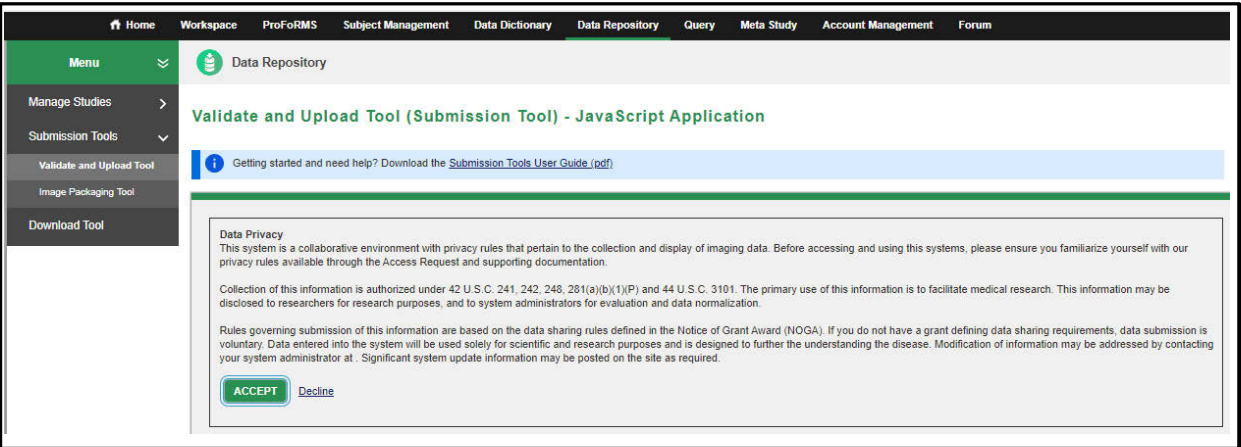
2. Click the **Data Repository** module from your Workspace.
3. Click the **Submission Tools** on the left-side menu.
4. Click Submission Tools.
5. Click Validate and Upload Tool.



6. The **Validate and Upload Tool** window appears. Click the **LAUNCH SUBMISSION** button.

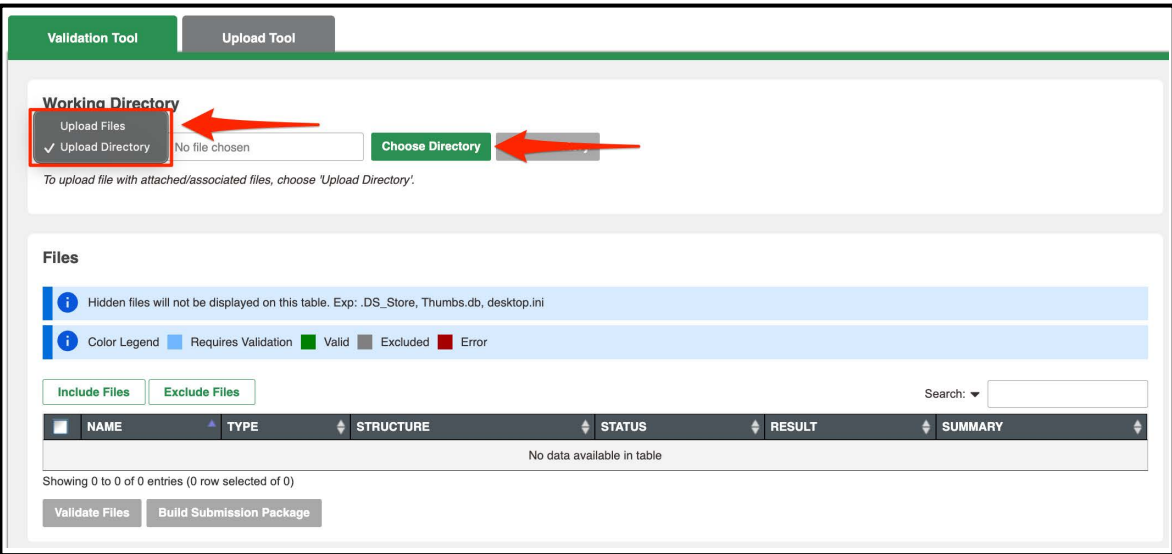


7. Read and Accept the Data Privacy rules.

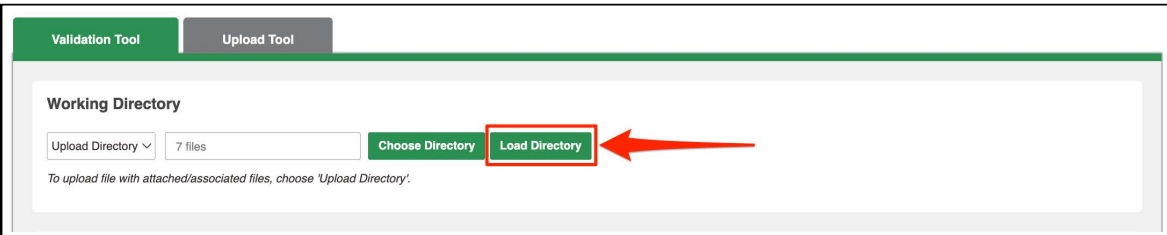


8. The Validation Tool will open. Choose Upload Directory/Upload Files:

- 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

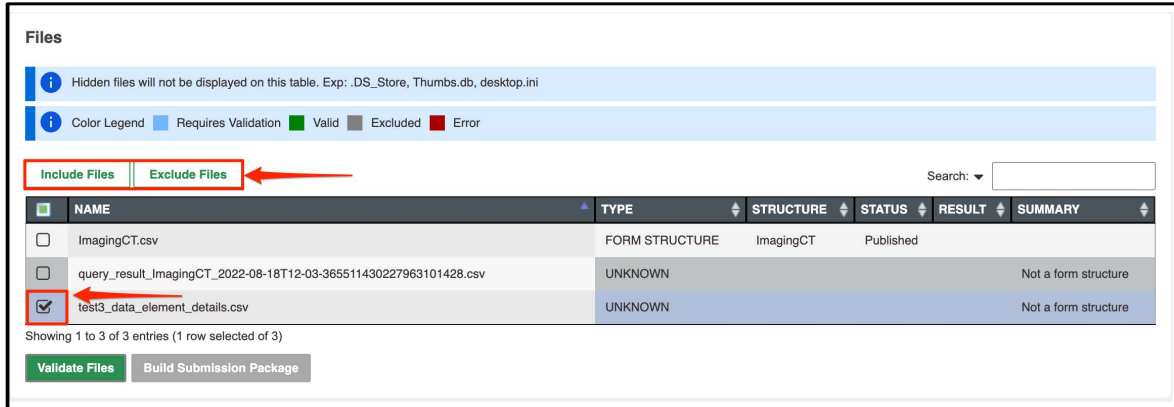


9. Select **Load Directory** to upload the chosen files.



Including/Excluding files from validation:

10. 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.

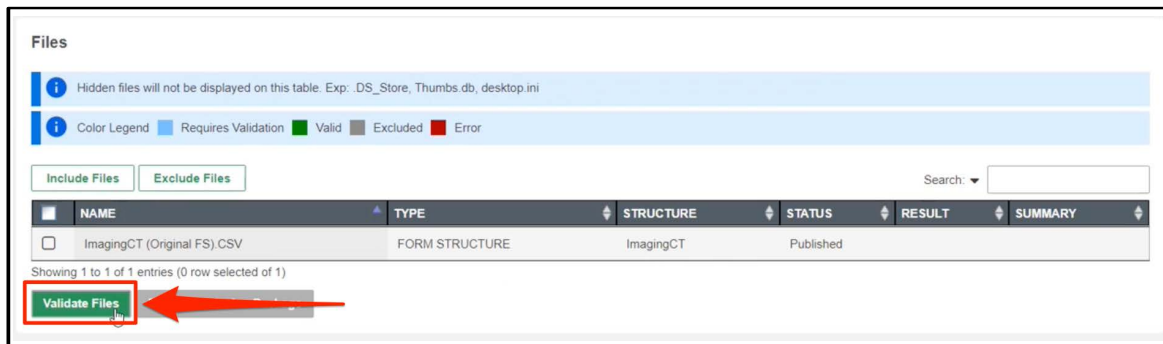


The screenshot shows the 'Files' management interface. At the top, there are informational messages and a color legend. Below that are 'Include Files' and 'Exclude Files' buttons. A table lists the files with columns for NAME, TYPE, STRUCTURE, STATUS, RESULT, and SUMMARY. The third row, 'test3_data_element_details.csv', is selected with a checked checkbox. A red arrow points to the 'Exclude Files' button.

NAME	TYPE	STRUCTURE	STATUS	RESULT	SUMMARY
ImagingCT.csv	FORM STRUCTURE	ImagingCT	Published		
query_result_ImagingCT_2022-08-18T12-03-365511430227963101428.csv	UNKNOWN				Not a form structure
<input checked="" type="checkbox"/> test3_data_element_details.csv	UNKNOWN				Not a form structure

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**.



The screenshot shows the 'Files' management interface with a single file entry. The 'Validate Files' button is highlighted with a red arrow.

NAME	TYPE	STRUCTURE	STATUS	RESULT	SUMMARY
ImagingCT (Original FS) CSV	FORM STRUCTURE	ImagingCT	Published		

10.If there are any validation errors you will receive an error message. The errors/warnings will be displayed in the **Result Details table**. You can download the result details using the button above the table: **Export Result Details** button.

<input checked="" type="checkbox"/>	NAME	TYPE	STRUCTURE	STATUS	RESULT	SUMMARY
<input checked="" type="checkbox"/>	ImagingCT.csv	FORM STRUCTURE	ImagingCT	Published	FAILED	4 Warnings + 8 Errors

Showing 1 to 1 of 1 entries (1 row selected of 1)

Result Details

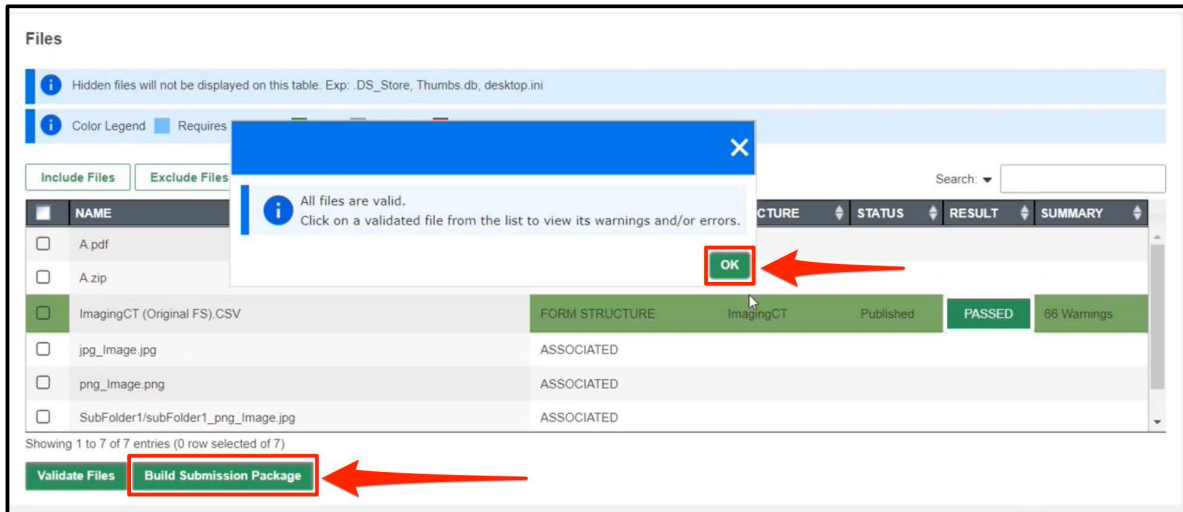
i 100 Warnings and Errors will be displayed.

Disable Warnings
 Search:

TYPE	DESCRIPTION
ERROR	The record that begins on row 4 must contain more than 1 instances of the repeatable group: "Image QA & QC".
ERROR	The record that begins on row 4 must contain more than 1 instances of the repeatable group: "Image pixel information and dimensions".
ERROR	The record that begins on row 4 must contain more than 1 instances of the repeatable group: "Image Information".
ERROR	The record that begins on row 3 must contain more than 1 instances of the repeatable group: "Image QA & QC".
ERROR	The record that begins on row 3 must contain more than 1 instances of the repeatable group: "Image pixel information and dimensions".
ERROR	The record that begins on row 3 must contain more than 1 instances of the repeatable group: "Image Information".

11. After fixing all errors. Re-upload your updated 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**.

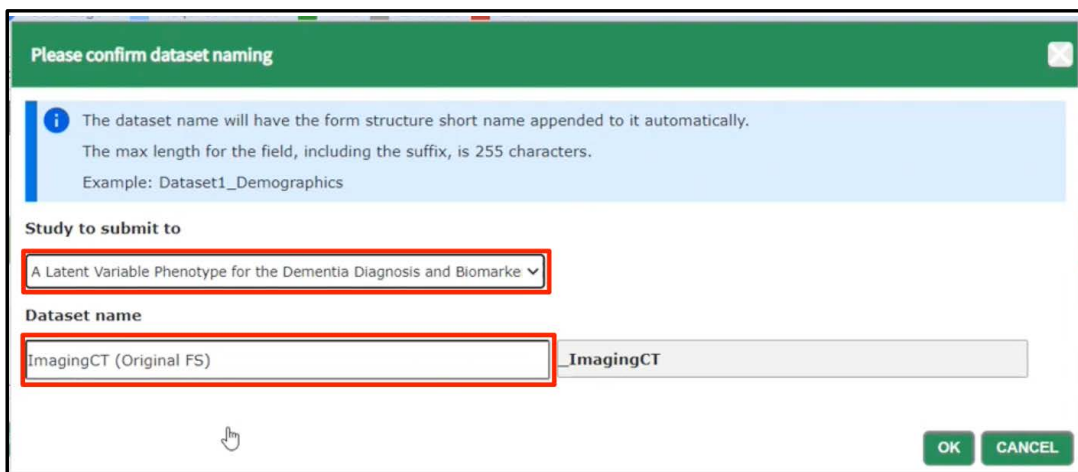
NOTE: The files may pass validation but still have many warning messages.



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.



10.2.2 Error Logs and Warnings

The Error Logs and Warnings will show the first 100 errors and warnings. If you have no errors then you can skip to the next section.

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 Result Details:
 - a) Select the Upload Type
 - 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 As**.
4. The log file will be saved in the designated directory under the chosen name.

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.

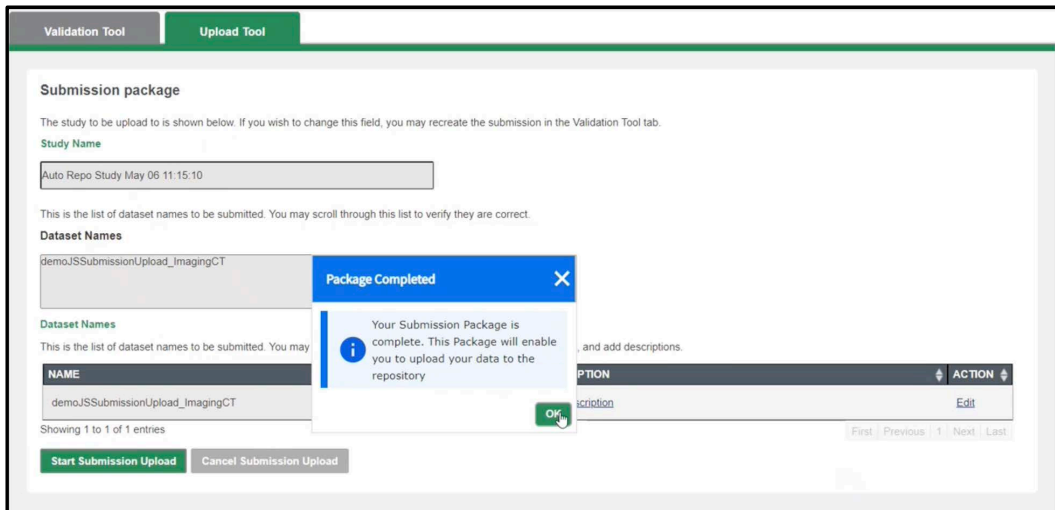
If you received numerous validation errors, we recommend that you work on fixing them in batches. Fix a few errors, save the fixed CSV file and re-run it through the **Data Validation Tool**. It will still give you a lot of errors, but we hope it would be fewer than before. Save the new error log and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

10.3 DATA UPLOAD TOOL

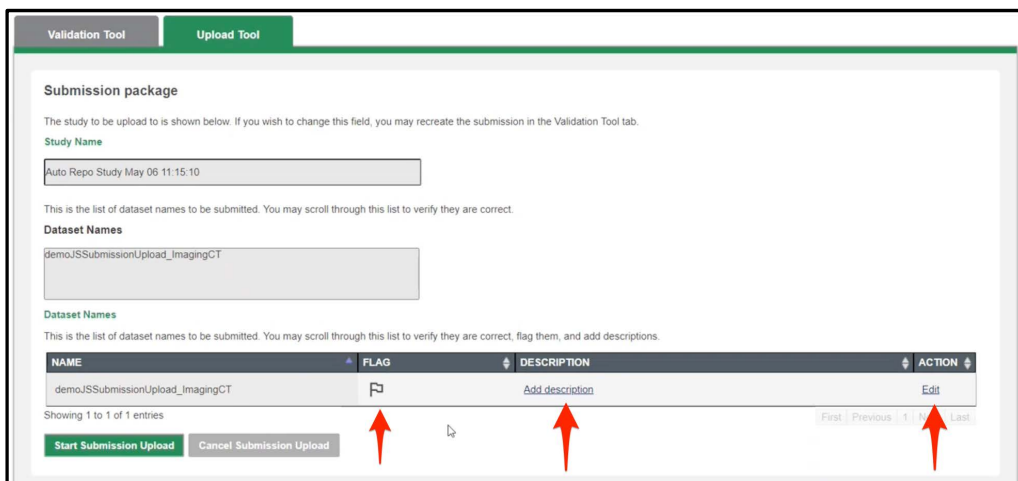
The **Data Upload Tool** will open after Building a submission package using the **Data Validation Tool**.

10.3.1 Running the Data Upload Tool

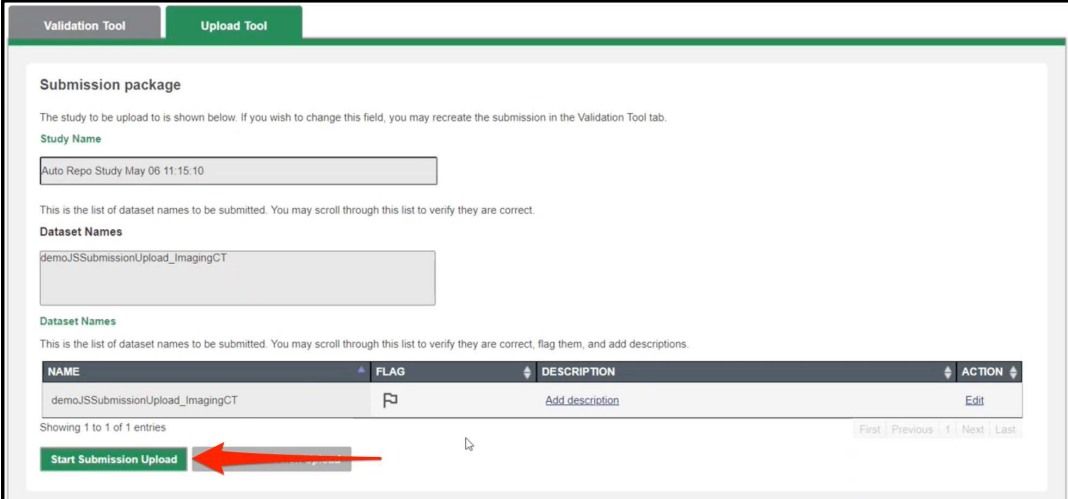
1. After completing use of the Validation Tool. The Upload Tool will open with the following message. **Click OK to continue.**



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.



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



Validation Tool Upload Tool

Submission package

The study to be upload to is shown below. If you wish to change this field, you may recreate the submission in the Validation Tool tab.

Study Name

Auto Repo Study May 06 11:15:10

This is the list of dataset names to be submitted. You may scroll through this list to verify they are correct.

Dataset Names

demoJSubmissionUpload_ImagingCT

Dataset Names

This is the list of dataset names to be submitted. You may scroll through this list to verify they are correct, flag them, and add descriptions.

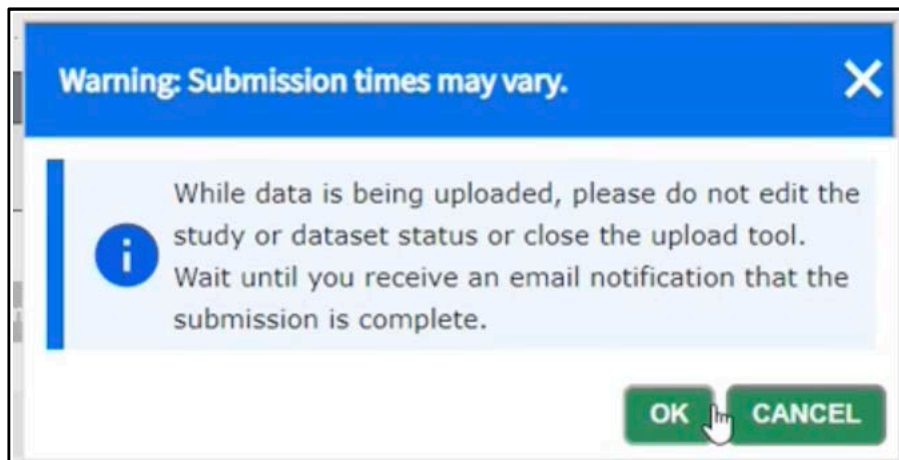
NAME	FLAG	DESCRIPTION	ACTION
demoJSubmissionUpload_ImagingCT		Add description	Edit

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Start Submission Upload

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



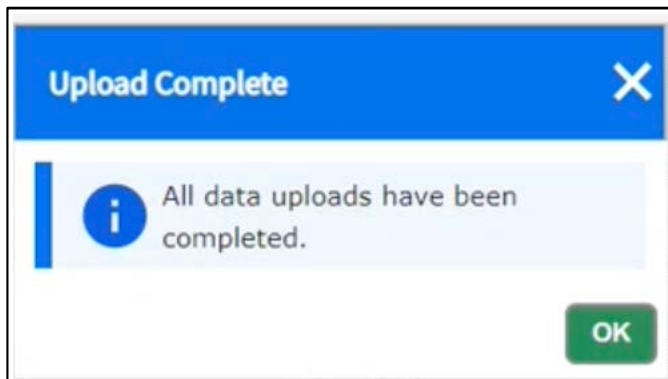
5. Afterwards the upload will begin and you can view its progress in the **Upload Queue**. Do not close the upload tool while it is still in progress. Wait until you receive a complete update message.

Upload Queue

NO.	FILE NAME	STUDY	DATASET	UPLOAD SPEED	UPLOAD PROGRESS	TIME REMAINING	STATUS
1	ImagingCT (Original FS).CSV	Auto Repo Study May 06 11:15:10	demo.JSSubmissionUpload_ImagingCT	0 B/s	100.0%	0 seconds	Completed
2	jpg_image.jpg	Auto Repo Study May 06 11:15:10	demo.JSSubmissionUpload_ImagingCT	0 B/s	100.0%	0 seconds	Completed
3	png_image.png	Auto Repo Study May 06 11:15:10	demo.JSSubmissionUpload_ImagingCT	1.518024474973799 MB/s	37.3%	0 seconds	Queued
4	A.pdf	Auto Repo Study May 06 11:15:10	demo.JSSubmissionUpload_ImagingCT		0.0%		Uploading

Showing 1 to 4 of 4 entries

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



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 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:

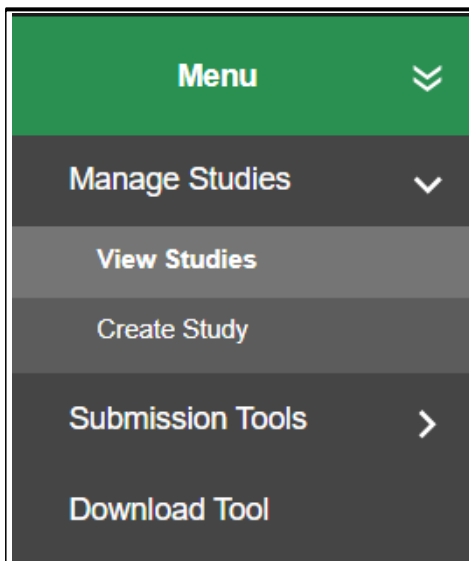
-  You can only upload data to the studies you have the data upload permissions.
-  To make sure that the most recent list of studies is available for you, use the Refresh button to update the list of studies.
-  The name assigned to the uploading dataset must be unique for the selected study.

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.

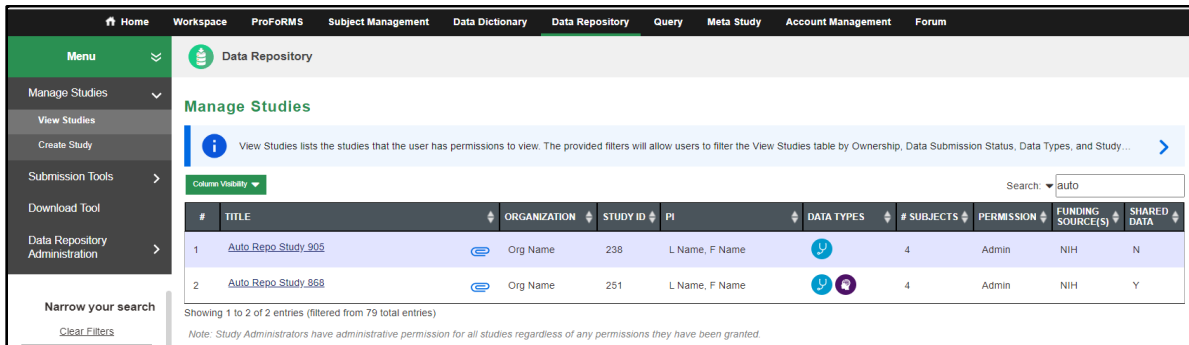
To Populate [Download Queue](#): Perform the following actions:

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**.



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.

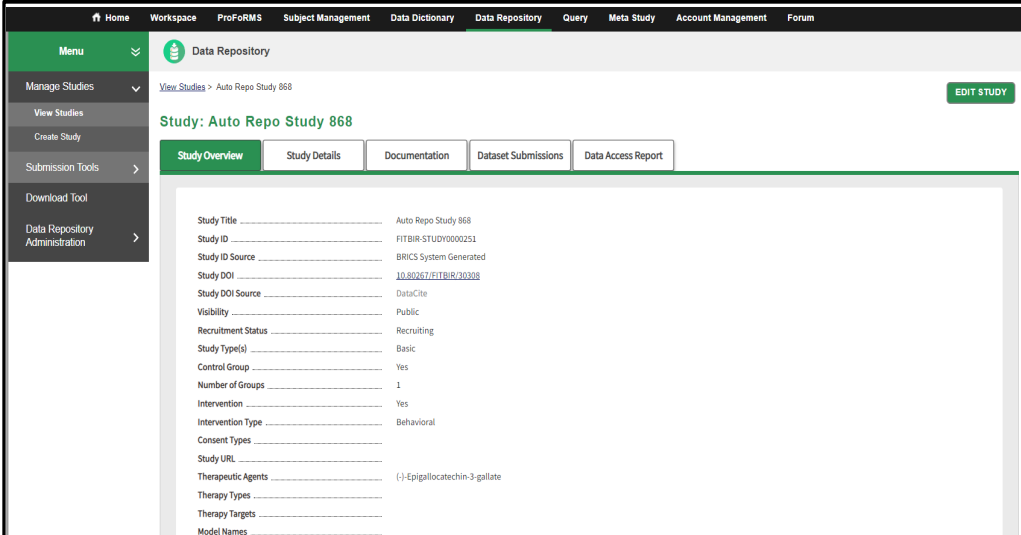


The screenshot displays the 'Manage Studies' page in the BRICS Data Repository. The page includes a navigation menu on the left, a search bar at the top right, and a table of study entries. The table has the following columns: #, TITLE, ORGANIZATION, STUDY ID, PI, DATA TYPES, # SUBJECTS, PERMISSION, FUNDING SOURCE(S), and SHARED DATA. Two entries are shown:

#	TITLE	ORGANIZATION	STUDY ID	PI	DATA TYPES	# SUBJECTS	PERMISSION	FUNDING SOURCE(S)	SHARED DATA
1	Auto Repo Study_908	Org Name	238	L Name, F Name		4	Admin	NIH	N
2	Auto Repo Study_868	Org Name	251	L Name, F Name		4	Admin	NIH	Y

Below the table, it indicates 'Showing 1 to 2 of 2 entries (filtered from 79 total entries)'. A note at the bottom states: 'Note: Study Administrators have administrative permission for all studies regardless of any permissions they have been granted.'

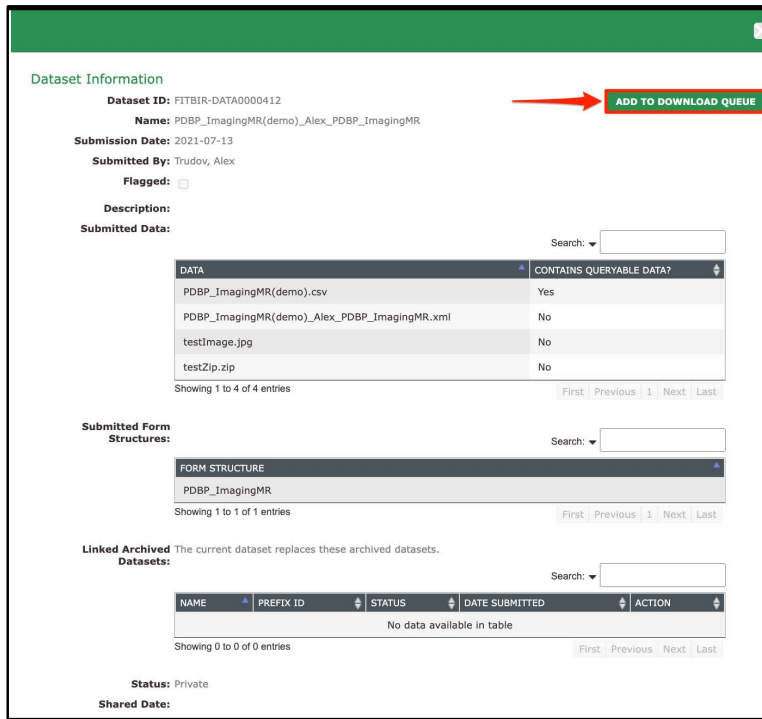
4. Select the Dataset you wish to download by clicking on its name. A pop-up window opens with information regarding the dataset.



The screenshot displays the 'Data Repository' section of the BRICS user interface. The top navigation bar includes links for Home, Workspace, ProFORMS, Subject Management, Data Dictionary, Data Repository (active), Query, Meta Study, Account Management, and Forum. A left-hand menu provides options for Manage Studies, View Studies, Create Study, Submission Tools, Download Tool, and Data Repository Administration. The main content area is titled 'Study: Auto Repo Study 868' and includes an 'EDIT STUDY' button. Below the title are tabs for 'Study Overview' (selected), 'Study Details', 'Documentation', 'Dataset Submissions', and 'Data Access Report'. The 'Study Overview' tab displays the following study information:

Study Title	Auto Repo Study 868
Study ID	FITBIR-STUDY0000251
Study ID Source	BRICS System Generated
Study DOI	10.80267/FITBIR/30308
Study DOI Source	DataCite
Visibility	Public
Recruitment Status	Recruiting
Study Type(s)	Basic
Control Group	Yes
Number of Groups	1
Intervention	Yes
Intervention Type	Behavioral
Consent Types	
Study URL	
Therapeutic Agents	(-)-Epigallocatechin-3-gallate
Therapy Types	
Therapy Targets	
Model Names	

5. Click **Add To Download Queue**.



Dataset Information

Dataset ID: FITBIR-DATA0000412

Name: PDBP_ImagingMR(demo)_Alex_PDBP_ImagingMR

Submission Date: 2021-07-13

Submitted By: Trudov, Alex

Flagged:

Description:

Submitted Data:

Search:

DATA	CONTAINS QUERYABLE DATA?
PDBP_ImagingMR(demo).csv	Yes
PDBP_ImagingMR(demo)_Alex_PDBP_ImagingMR.xml	No
testImage.jpg	No
testZip.zip	No

Showing 1 to 4 of 4 entries

First Previous 1 Next Last

Submitted Form Structures:

Search:

FORM STRUCTURE
PDBP_ImagingMR

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Linked Archived Datasets: The current dataset replaces these archived datasets.

Search:

NAME	PREFIX ID	STATUS	DATE SUBMITTED	ACTION
No data available in table				

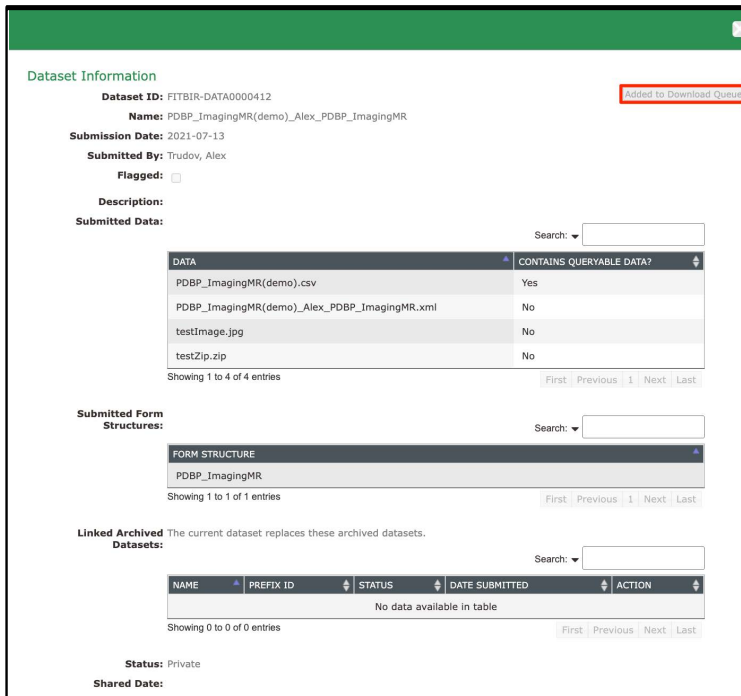
Showing 0 to 0 of 0 entries

First Previous Next Last

Status: Private

Shared Date:

6. 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”**.



Dataset Information

Dataset ID: FITBIR-DATA0000412

Name: PDBP_ImagingMR(demo)_Alex_PDBP_ImagingMR

Submission Date: 2021-07-13

Submitted By: Trudov, Alex

Flagged:

Description:

Submitted Data:

Search:

DATA	CONTAINS QUERYABLE DATA?
PDBP_ImagingMR(demo).csv	Yes
PDBP_ImagingMR(demo)_Alex_PDBP_ImagingMR.xml	No
testImage.jpg	No
testZip.zip	No

Showing 1 to 4 of 4 entries

First Previous 1 Next Last

Submitted Form Structures:

Search:

FORM STRUCTURE
PDBP_ImagingMR

Showing 1 to 1 of 1 entries

First Previous 1 Next Last

Linked Archived Datasets: The current dataset replaces these archived datasets.

Search:

NAME	PREFIX ID	STATUS	DATE SUBMITTED	ACTION
No data available in table				

Showing 0 to 0 of 0 entries

First Previous Next Last

Status: Private

Shared Date:

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)**

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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