

BRICS USER GUIDE

Data Dictionary: Form Structures





CHAPTER 4 - Data Dictionary: Form Structures

The **Data Dictionary** module is used for defining data elements and form structures. The Data Dictionary enables users to search, create, and manage both Common Data Elements (CDE) and Unique Data Elements (UDE). Additionally, it allows for the creation and management of form structures (FS) and electronic forms (eFORMS).

The Data Dictionary module is closely related to the Data Repository module, which provides long term repository for research data.

4.1 Data Dictionary Objectives

- Browse existing Form Structures
- Search Form Structures
- Create Form Structures
- Browse existing Data Elements
- Search Data Elements
- Create Data Elements
- Import Data Elements
- Browse existing eForms
- Search eForms
- Create eForms

4.2 System Functions

The Data Dictionary module offers functionality for defining data elements, assigning alternate names (aliases), and setting translation rules. It ensures that users accessing shared data receive clear, standardized definitions and contextual information for each element.

4.3 Data Dictionary Module Features

The **Data Dictionary Module** provides useful features for:

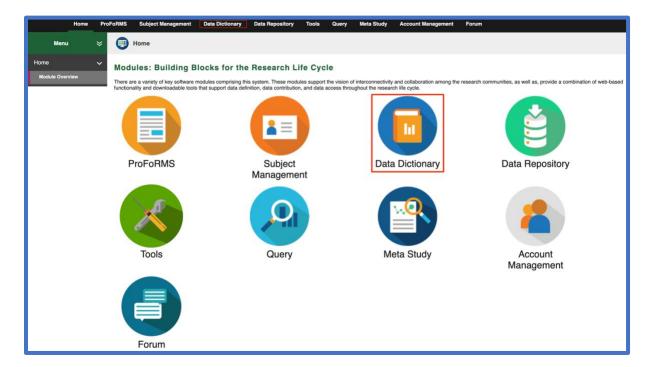
- Searching Data Elements
- Downloading Data Elements Results to XML, CSV and ZIP output formats
- Creating Data Elements
- Importing Data Elements



4.4 Module Navigation

The **Data Dictionary** module (including sub-modules) is available within the BRICS Workspace. **To access the Data Dictionary Module:** Perform the following actions:

1. Log into your BRICS instance and select the Data Dictionary module from either the top navigation bar or the module icon.



4.5 Form Structures

A form structure (FS) is a presentation of a given case report form (CRF) in BRICS system. A form structure represents an organized grouping/collection of various data elements (CDEs and UDEs). A form structure is analogous to a CRF (electronic or paper) where data elements are linked together for collection and display. **Form Structures** are used for:

- Data Submission:
 - The Form Structure is used as a container for submitting data via the Submission Tool validation process and upload the data to the Data Repository
- Creating eFORMs (eCRFs) and collect data:
 The form structure provides a structure (or a template) for a form and a container for active data collection.
- Querying Data:
 The form structure assures that uploaded/collected data are properly represented and queryable by the Query Tool.

NOTE: To be able to create form structures in BRICS, a user must have the permissions to do that in Data Dictionary. Permissions/privileges are assigned to the user when he/she is requesting an account to the BRICS instance.



4.5.1 Form Structures Publication

There are four different Status Types of Form Structures: Draft, Awaiting Publication, Published, and Shared Draft. After creating a Form Structure, it will be placed into Draft status. The owner, or an admin, can request publication for the Form Structure, in which the status will be changed to Awaiting Publication. While in Awaiting Publication it is viewable by all users, including the public site. After it has been reviewed and approved by an admin, the FS's status will change to Published and can be used for Data Submission.

See the table below for details on the statuses and their corresponding attributes:

Туре	Description	Visibility	Editable?	Data Validation?	Data Submission?
Draft	In a process of development.	Required to log in into portal. Available for the owner, admin and to whom were given permissions only	Yes	Yes	No
Awaiting publication	A publication has been requested for this FS	All users, including the public site	Yes	Yes	No
Published	The FS which is available for public use	All users, including the public site	Limited. Can edit Title, Description, add/remove documentation.	Yes	Yes
Shared Draft	Form structures were created by the NINDS CDE Project. Provide recommendations for investigators of which CDEs to use.	All uses including the public site	Yes	No	No

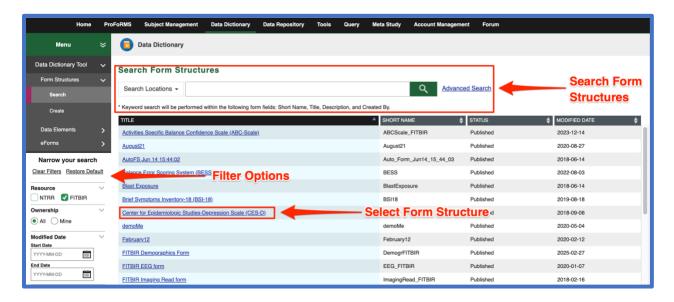


4.5.2 Browse Form Structures

Clicking the Data Dictionary module icon automatically redirects to the **Data Dictionary>Search Form Structures** page, which by default lists all published form structures which exists in a given instance of BRICS.

On that page users can:

- 1. Browse From Structures.
- 2. Sort/filter FS by title (alphabetically), short name, status, and modified date.
- 3. View the FS by clicking on FS title, it will open the FS page for view.





4.5.3 Filter Form Structures

To limit the number of form structures displayed in the Data Dictionary, BRICS provides options to filter form structures by the set of pre-defined filters, organized as check boxes. The list of filter options is shown below.

Default filter settings depend on the BRICS instance and can be set up when the BRICS instance is first set up. Default filter settings for FITBIR, are shown on the figure at the end of this chapter.

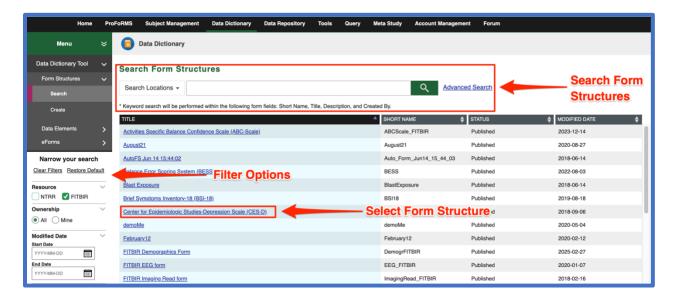
- Clear Filters: Clears all filters showing all Form Strucutres.
- Restore Default: Restores filter settings default for the given instance of BRICS.
- **Resource**: Select the resource(s) you wish to view.
- Ownership: To search for FS by ownership. All shows all FS. Mine only FS datayou own
- Modified Date: Search based a date range that the form structure was modified on.
- Instance of BRICS Program (e.g. FITBIR) (All, Specific):
 - o All shows all FS
 - Program Specific- shows only those FS which are defined as recommended/specific by the program.
- Form Types:
 - o Clinical Assessment: FS which created to collect clinical data
 - o Omics: FS which created to collect Genomics, Proteomics and like data
 - o Imaging: FS created to collect imaging data
 - o **Preclinical:** FS created to collect preclinical data
- Standardization:
 - Standard form structures (FS): Based on the standardinstruments/scales/batteries.
 NINDS/BRICS defined standard instruments asthose which 1) have publications, seminal papers, validity research, whichdescribes their creation, properties, administration, etc.
 2) have well defineddocumentation and 3) widely used in the community
 - Standard NINDS CDE FS: A sub-set of Standard FS, limited to those whichare recommended by NINDS to use for a particular disease category. More canbe found here: https://www.commondataelements.ninds.nih.gov
 - Standard Modified: Created based on a modified standardinstrument. Some teams
 choose to modify standard instruments, so we use this standardization to accommodate
 it.
 - Appendix: Created to provide additional DEs for a standard and StandardNINDS FS, to accommodate additional data, which do not fit into Standard FS.BRICS has special naming conventions for appendices.
 - Unique: Based on a unique study specific form/instrument
- **Labels:** Filters FS by the custom labels assigned to FS in a given BRICS instance. Assigning labels is admin privilege.
- Status: Draft, Awaiting Publication, Published, Archived, Shared Draft
- Form Copyright Status: All, Copyrighted, Non-Copyrighted
- Diseases: BRICS has an option to assign a given FS to a specific disease category. This allows to separate FS created for specific disease needs. Click "more" in the filter list to see all currently supported diseases.



4.5.4 Search Form Structures

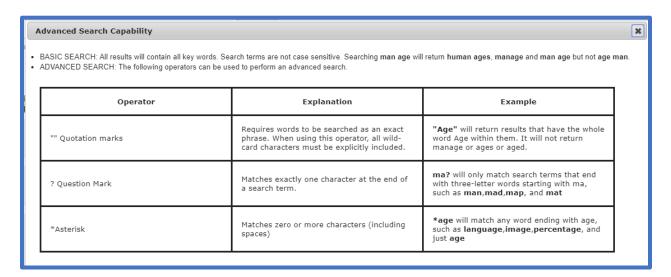
To search Form Structures, peform the following actions:

- 1. Navigate to the **Data Dictionary** module. The Search Form Structures page appears.
- 2. In the search textbox, enter the search keyword to search. Keyword search will be performed within the form fields using the **Short Name**, **Title**, **Description** and **Created By**.
- 3. Click the Magnify Glass icon. The system will perform the search you specified.
- 4. You may also consider using **Advanced Search option** to make your search more specific.
- 5. By default, the search is performed within the limits defined by filter settings (refer to section 4.5.3.). Which means if you cannot find the FS in question, click Clear Filters and try again. Please note that FS in Draft status does not show up for the initial search, you must click Clear Filters for the results to return with the FS in draft status.





6. Advance Search provides the following search options, which can be viewed by clicking on he Advances Search link.



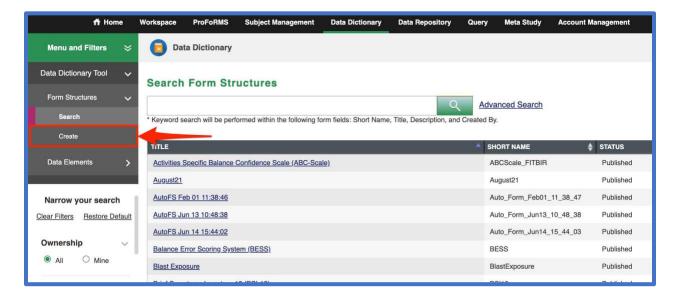
4.6.5 Create Form Structures

There are two distinct steps for creating a Form Structure in BRICS:

- Without the Form Structure Template
- With the Form Structure Template

To Create Form Structures Without Using the Form Structure Template: Perform the following actions:

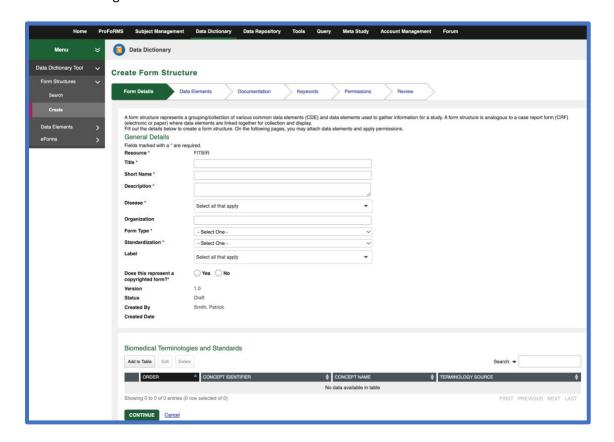
- 1. Login and navigate to the Data Dictionary module.
- 2. In the left navigation click Create under Form Structures





4.6.5.1 Form Details Chevron:

 Follow the process as it is guided by chevrons. Each chevron page has a lot of information, helping you to fill out all required fields.
 Starting with the Basic Information chevron:



Complete all required fields marked with an * asterisk:

- **Title***: Please follow the standards defined in your BRICS instance for FS title. Typically the title should contain FS name and version if any. If FS created torepresent the standard instrument, its title must contain the name of the instrumentand the version if any.
- Short Name*: Limited by 30 characters. Must be unique within the given instance of BRICS.
- **Description***: Limited to 1000 characters. Provide the detailed description of the FS.Include all information which will help to better identify the FS.
- **Diseases***: Select as many disease categories as needed. Use Ctrl+Right mouse click to select multiple disease categories.
- **Organization:** The organization that the user creating the FS belongs to.
- Form Type*: Clinical Assessment, Omics, Imaging, Preclinical. Choose one.
- **Standardization***: Select one from the list available for your BRICS instance.
- Label: Select one, if theassociated instance has labels.
- Is this a program Required Form? *: Choose Yes or No.
- Does this represent a copyrighted form*: Choose Yes or No.
- Biomedical Terminologies and Standards: Add relevant data to the table when necessary.

Select **Continue** when finished to move onto the Data Elements chevron.



4.6.5.2 Data Elements Chevron - Main Group and Form Administration Group:

There are 2 groups which are required for all FS, including Standardized, Unique, Appendices, etc. in all instances of BRICS. These are the **Main Group** and **The Form Administration**.

These groups are meant to provide consistency and context for all data submitted to the BRICS database. The DE content of these groups could vary, but not very much.

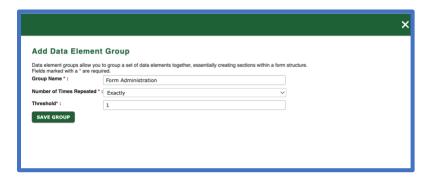
The first group to be populated under the Data Elements Chevron automatically is the **Main group**. **Main Group**:

• **GUID** should be the first DE added to the main group. It must be present in all BRICS Form Structures, and it must have the status "**required**".

The Form Administration group should be added by the user.

To create a group:

1. Use the **Add Group** button.

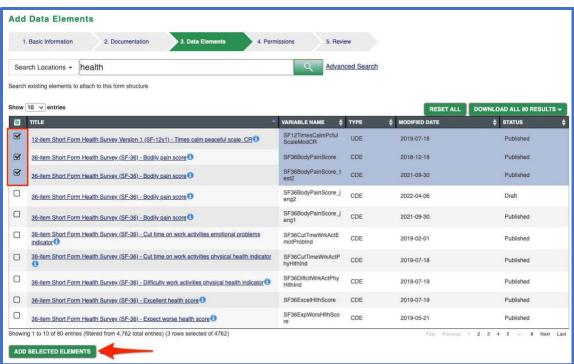


- 2. Provide the group name. The group name must be unique within the form structure.
- 3. Provide the group repeatability settings. The repeatability settings are as follows:
 - a. At least: Provides the min number the group must be repeated.
 - b. **Exactly**: Provides the exact number the group must be repeated. That is a tricky setting, were commend contacting OPS when you plan to use it.
 - c. **Up to**: Provides the max number the group will be repeated. Up to=0, means the group could be repeated indefinitely.

Adding to a Group

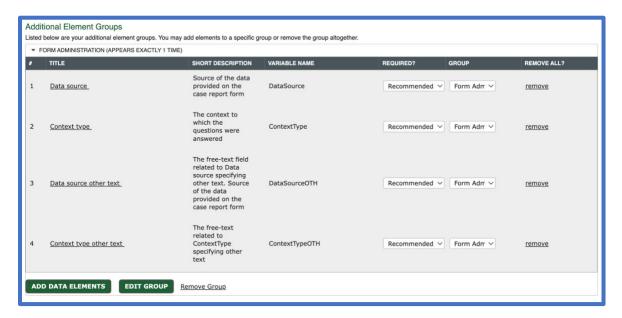
- After the group name and repeatability is set up, use Add Data Elements button to access the
 data element interface, where users can search for existing data to add to the form structure.
 NOTE: To be added the DE must already exist in the data dictionary.
- 2. Select the data elements by checking the checkbox next to the desired data element. Once done searching and checking off data elements, click the Add Selected Elements button. The selected data elements will be added to the group in the order in which they were selected. [It is a best practice to add data elements to the form structure in the order that they appear on the form]. The same data element can be included in the same group only once.







Example of a Form Administration Group:



4.6.5.3 Data Elements Chevron - Moving data elements around:

To adjust the order of data elements within an element group once they have been added to a form structure, simply click on the data element, drag, and drop the data elements to the desired position.

4.6.5.4 Data Elements Chevron - Assigning the status of the data elements within the group:

There are three statuses for the optionality of a data element:

- **Required**: A good setting to set if you need to make sure that data are always submitted against the data element. But keep in mind that the Validation tool will produce an error and not allow the dataset to pass validation if a cell is left blank for the data element.
 - GUID should always be required we recommend that Required setting is always used for GUID.
- **Recommended**: The Validation Tool will produce a warning, but still allows the data set to pass if a cell is left blank for that data element.
- **Optional**: The Validation Tool will NOT produce error or warning and will allow that dataset to pass if a cell is left blank for that data element.
- Change the requirements for the data elements to whatever is appropriate for your study using the drop-down menu. [It is a best practice to change the data elements from "Optional" to "Recommended".]
- Once all groups are created and DEs added, click Continue. You will be move to the Permissions Chevron.

4.6.5.5 Data Elements Chevron Editing DE group:

Adjusting the Order of Element Groups



- 1. Click on the title bar of the group.
- 2. Drag and drop the group to the desired position. **Note**:
 - a. The Main Group cannot be moved,
 - b. The Form Administration group must stay after the Main group.

Editing Data Element Group Settings

- 1. Click on the "Edit Group" button.
- 2. Make the desired changes.

Removing Data Element Group

- 1. Click on the "Remove Group" link. Once removed, the group cannot be restored automatically. Removing a Data Element from the group
 - 1. Under the "Removal All?" column, click on "Remove" link.

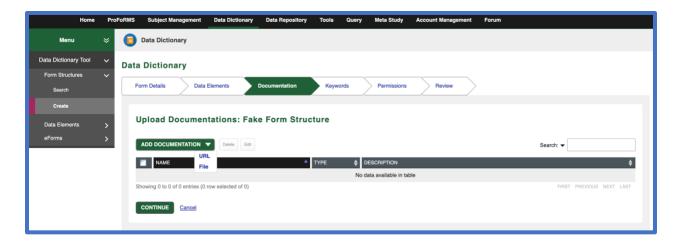
Moving Data Elements Between Groups

- The data elements that are added have a Group column showing what group it is currently in.
 Use this drop-down menu to select which data element group you would like to move the data
 element. There will be a prompt to confirm moving the data element and then it will be
 removed from the current group and show in the group it was moved to.
- 2. After moving a DE from one group to another, make sure that all DEs appear in the proper order within the group.
- 3. It is a best practice to do this in the order that the data elements appear on the form.

4.6.5.6 Documentation Chevron

Click the Add Documentation button and select the desired file or URL.

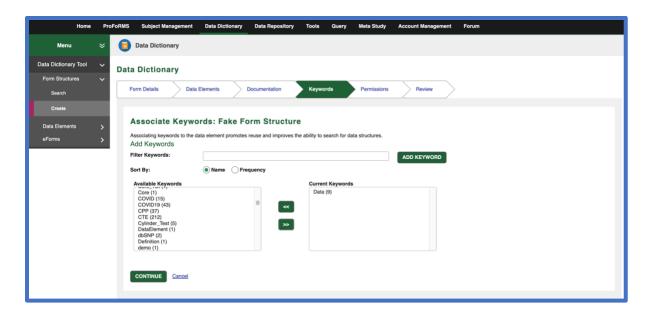
NOTE: Documentation is optional, but BRICS Operations encourage uploading all documentation used to create a FS.



4.6.5.7 Keywords Chevron

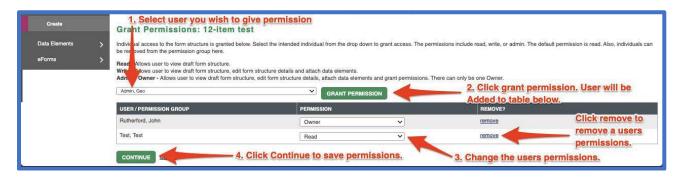
Filter and select the keywords you wish to add to this FS. Select the keywords in the left table and then click the arrows in the middle to move them to be set to current keywords or remove them by moving them back to available keywords.





4.6.5.8 Permissions Chevron

 Grant Permissions: Select the intended individual from the drop-down menu to grant permission. Click on the Grant Permission button. Once added, choose the desired level of permission to that form structure: The permissions include Read, Write, or Admin/Owner. The default permission is Read. Additionally, individuals can be removed from the permission group from here. See Removing Permissions below.



Things to Note:

- 1. Read Allows user to view draft form structure.
- 2. Write Allows user to view draft form structure, edit form structure details and attach data elements.
- 3. Admin / Owner Allows user to view draft form structure, edit form structure details, attach data elements, and grant permissions.
- 4. There can only be one Owner per form structure (by default it is the creator of the form structure, but can be changed)



4.6.5.9 Review Chevron

1. **Review**: Review all the data elements and make sure they are in the correct order and have the correct requirements (optionality, group, threshold, etc.)

If there are no issues; click the Finish button. The Form Structure will be saved in DRAFT status.

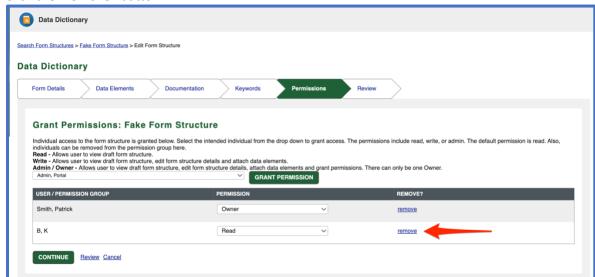
2. Final Review: Review the details of the Form Structure. Click the Finish button to display the Form Structure.

4.6.6 Removing Permissions

- 1. Search for form structure
- 2. Select "Edit Form" button at the top of the page.



- 3. Click on the "Permissions" Chevron.
- 4. Click the "remove" button.





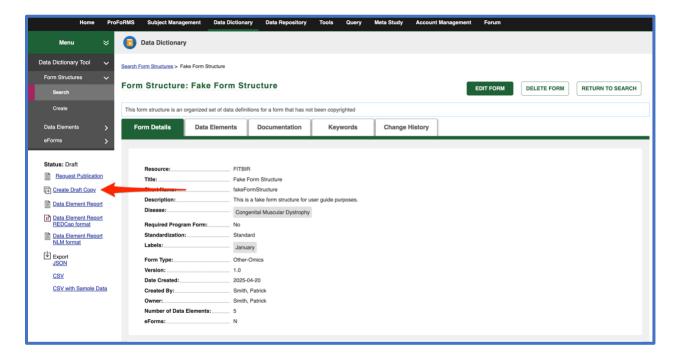
The user will no longer have Admin/Write/Read privileges to your form structure.

5. Once all permissions have been assigned, click Continue. Review and save changes under the Review Chevron.

4.6.7 Other ways of creating a Form Structure

In the above sections we discussed the conventional way of creating a form structure from the very beginning. There are alternative ways to create a form structure as well:

- 1. From a published FS, by using Create Draft Copy option.
- 2. From a Shared Draft FS by using Create Draft Copy option.



3. By exporting a FS as an XML file from one instance of BRICS and re-importing it in another instance of BRICS – that requires Admin privileges.



4.6.8 Copying published Form Structures

- 1. If there is a published form structure that is applicable to, use it as-is.
- 2. OR use the Create Draft Copy option to create a copy of a published FS and then edit it to adjust it to your needs.
- 3. When using Create Draft Copy option, make sure that the new FS contains the appropriate Main Group.
- 4. If it is a STANDARDIZED form, then please follow the rules below for creating an **addendum** form structure.
- 5. Contact the Operations team to ask any additional questions.

4.6.9 Addendum Form Structures

If the study uses standard instruments which are either modified or have added additional questions to accommodate your study needs, to preserve data harmonization and data standards in BRICS, we recommend that you follow this procedure:

- 1. Use or create a FS that represents the standard instrument as is.
- 2. Use addendum/appendix form structure to accommodate study-specific data elements needed be to add to a standardized instrument.

NOTE: If the data elements being added affect the summary scores of the standardized form structure, the user will have to make a new Unique form structure.

To Create and Addendum: Perform the following actions:

- 1. Create a FS following these naming conventions.
- 2. Appendix/addendum naming conventions
 - a. Title: Form Name and acronym followed by Appendix and FITBIR study number
 - b. Example: Patient Health Questionnaire 9 (PHQ9) Appendix for FITBIR_Study0000217
 - c. Note: If the data elements you are adding affects the summary scores of the standardized form structure you will have to make a new Unique form structure **To Create and Addendum:** Perform the following actions:
 - d. **Short Name**: Form Name/Acronym you are building the appendix for_Appdx_Number portion of FITBIR Study ID **d. Example**: PHQ9_Appdx_0000217
- In addition to adding the study-specific data elements, you MUST include the data elements in the MAIN GROUP and the FORM ADMINISTRATION GROUP listed above.