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6

GUID **Global Unique Identifier**



CHAPTER 6 – GLOBAL UNIQUE IDENTIFIER

The **Global Unique Identifier, GUID**, enables data to be associated with a research participant without exposing or transferring the research participant's personally identifiable information (PII). It is randomly generated, alphanumeric code that is not generated directly from PII. This capability provides two primary benefits. First, it allows data about a research participant to be accumulated across projects over time, regardless of where and when that data were collected. Secondly, it enables a researcher to define a study population while supporting a research hypothesis, even if the data were not collected by the researcher. This second benefit is further enabled through the use of the Multi-Tenant GUID server (Centralized GUID Solution), which facilitates the sharing of GUIDs across diseases and/or institutes in a secure manner.

The GUID Client software is a JavaScript application that runs directly in your web-browser. The GUID Client is supported on all browsers (Google Chrome, Firefox, Microsoft Edge, Safari, and Internet Explorer v10 and higher).

6.1 GUID PROCESS

Researchers collect PII (sometimes referred to as Private Health Information or PHI) from their participants and store that data in a local database that is not made available outside the research institution. Typically, that data is only available to a limited number of individuals. It is the availability of this at the investigator's site that is used to generate GUIDs. This is made possible by issuing special software that runs at the research site on an investigator's computer or allowing users to access it through an application. This software performs a one-way encryption, often called a one-way hash, which is sent to the GUID Client to determine if the research subject hash codes have been seen by the system before. The encrypted hash codes do not have information to recreate the PII. However, they do have enough information to determine if a research participant and associated GUID already exists in the system.

6.2 SYSTEM FUNCTIONS

The following are the service functions that compose the GUID Module:

- ❖ **Create GUID** – This function generates a valid GUID, provided the minimum required PII information is available. This module uses a hash function to generate a unique GUID for each participant. (Refer to the valid versus Pseudo-GUID section for more information).
- ❖ **Convert Pseudo GUID to GUID** – Allows users to convert Pseudo-GUIDs to valid GUIDs. Users need to provide the minimum required PII fields and the Pseudo-GUIDs.
- ❖ **Create Multiple GUIDs (With Close Match Checking and Without Close Match Checking)** — This function generates multiple participant GUIDs from a single call to the server. The batch functionality will process 50 participants at a time with a 5 minute delay between each 50 participants processed. The functionality operates using a .csv file that includes PII information (Refer to Table 1. PII Fields) and creates as an output with the list of GUID(s).

- ❖ **Generate Pseudo GUID** – Generates a Pseudo-GUID with a different format from a valid GUID. A Pseudo-GUID is a unique ID that is not based on PII. PII is not required to obtain a Pseudo-GUID. This function should only be used if a user is unable to get a valid GUID using the Create GUID function due to insufficient PII for a participant. (Refer to the valid GUID versus Pseudo-GUID section for more information on Pseudo-GUIDs.)
- ❖ **Search if GUID (or Pseudo GUID) exists in the system**– Allows users to check if a GUID (or Pseudo GUID) exists in the database. Users must provide a valid GUID or a Pseudo-GUID to use this function. If the submitted GUID exists in the database, the result will state “The GUID already exists”. If the GUID does not exist in the database, the result will state “The GUID does not exist.”

ICON KEY

 **Notes**

 **Important**
Information**Things to Note:**

- ❖ A one-way hash is a reproducible method of turning any data into a (relatively) small number that may serve as a digital "fingerprint" of the data. The algorithm "chops and mixes" (i.e., substitutes or transposes) the data to create such fingerprints. The hash represents the "fingerprint". However, it cannot be used to recreate the original.

6.3 PII FIELDS USED TO GENERATE A GUID

The PII fields that are used to generate a GUID are listed below in Table 1. The PII fields are pieces of data that will not change over the lifetime of the participant and are uniquely specific to the participant. Each PII field has an associated probability of a match in the general population. By combining full legal name, date of birth, and municipality of birth, the probability that two individuals share the same information and thus the same hash codes (i.e. a false positive) becomes negligible and is the minimum required information to generate a valid GUID. Additional data that is provided beyond the required minimum further decreases the probability of a false positive.

Additionally, in order to generate a GUID, the following PII is required:

- ❖ Complete legal given (first) name of the subject at birth
- ❖ If the subject has a middle name
- ❖ Complete legal family (last) name of subject at birth
- ❖ Day of birth
- ❖ Month of birth
- ❖ Year of birth
- ❖ Name of city/municipality in which subject was born
- ❖ Country of birth

ICON KEY

 Notes

❖ Important
Information

Things to Note:

- ❖ When inputting participant information, it is recommended that the information is derived from a government issued document/resource, such as a birth certificate or driver's license.

6.3.1 PII Fields Table

PII Field name	GUID Client Abbreviations	PII Required for Valid GUID
Complete legal given name of subject at birth	FIRST_NAME	Yes
Indicator if subject has a Middle Name at Birth	SUBJECT_HAS_MIDDLE_NAME	Yes
Complete additional legal name or names at birth	MIDDLE_NAME	Yes
Complete legal family name/surname of subject at birth	LAST_NAME	Yes
Day of Birth	DOB	Yes
Month of Birth	MOB	Yes
Year of Birth	YOB	Yes
City or Municipality of Birth	CITY_OF_BIRTH	Yes
Country of Birth	COUNTRY_OF_BIRTH	Yes
Physical sex of subject at birth [M/F]	SEX	No

PII Field name	GUID Client Abbreviations	PII Required for Valid GUID
Government Issued or National ID (For the United States, this is the Social Security Number)	GIID	No
Country Issuing Government-Issued or National ID	GIIDCOUNTRY	No
Organization/Cohort Association	ORGANIZATION_COHORT_ASSOCIATION	No

NOTE: The “Organization/Cohort Association” field is specific to the Parkinson’s Disease Biomarkers Program (PDBP) instance of BRICS. Values for this field will only be available for PDBP.

6.3.2 Special Instructions

Listed below are some special instructions that must be followed in order to ensure a valid GUID is created:

1. The "Last Name" field must contain the family name given at birth, prior to legal name change, or marriage. If there is any doubt as to the original legal name at birth, refer to the information on the birth certificate. Name suffixes such as "Jr.", "Sr.", "III", etc. should be ignored.
2. If the participant's "First Name" is a compound name, such as Anne Marie, or Jose- Luis, it may be unclear whether the second part of the compound is a first name or a middle name. In such cases, use the first name as you would report it on other records, such as school transcripts, or credit card billing statements. If in doubt, refer to the birth certificate.
3. If the participant does not have a "Middle Name" (known not to have a middle name at birth), leave this field blank and respond "No" when asked if the individual has a middle name. The GUID Software has a selection to accommodate this possibility. If in doubt, refer to the birth certificate.
4. If the "City or Municipality of Birth" has undergone a name change during a participant's lifetime, use the name of the city at the time of the participant's birth. Examples of this are Peking / Beijing, or Bombay / Mumbai. Again, if there is any doubt, refer to the birth certificate.

It is recommended that the participant's birth certificate and any copies of the participant's birth certificate be returned to the participant and not retained by the site.

6.3.3 Valid Versus Pseudo-GUID

A Valid GUID is a GUID that has been successfully issued using PII and is always a random ID. For retrospective data, it is understood that the minimum amount of PII may not be available or sufficient to generate a Valid GUID. For this reason, the tool provides the capability to issue a Pseudo-GUID. A Pseudo- GUID contains no PII and can be generated using the Generate Pseudo GUID function. Like a GUID, a Pseudo-GUID will always be unique. Pseudo-GUIDs are not compared to other participants (including Valid GUIDs). The advantage of using a Pseudo- GUID as an ID within a study is that it can later be updated to get a new Valid GUID while maintaining a mapping in the system for the Pseudo-GUID to the Valid GUID.

6.3.4 GUID Composition

A GUID must start with a prefix. The prefix is typically an abbreviation of a disease category. Examples of prefixes are TBI for Traumatic Brain Injury, PD for Parkinson's disease, and GRDR for Global Rare Diseases (Patient) Registry and Data Repository.

An example of a Valid GUID is: **TBIAC412JJK**

Users participating in the Multi-Tenant GUID server will generate a universal GUID with an NIH prefix consisting of ten (10) alphanumeric characters. An example of a Multi-Tenant GUID is: **NIH07HB8I7JK7**

6.3.5 Pseudo-GUID Composition

The format of the Pseudo-GUID is identical to that of a Valid GUID with the exception that after the prefix, `_INV` is added.

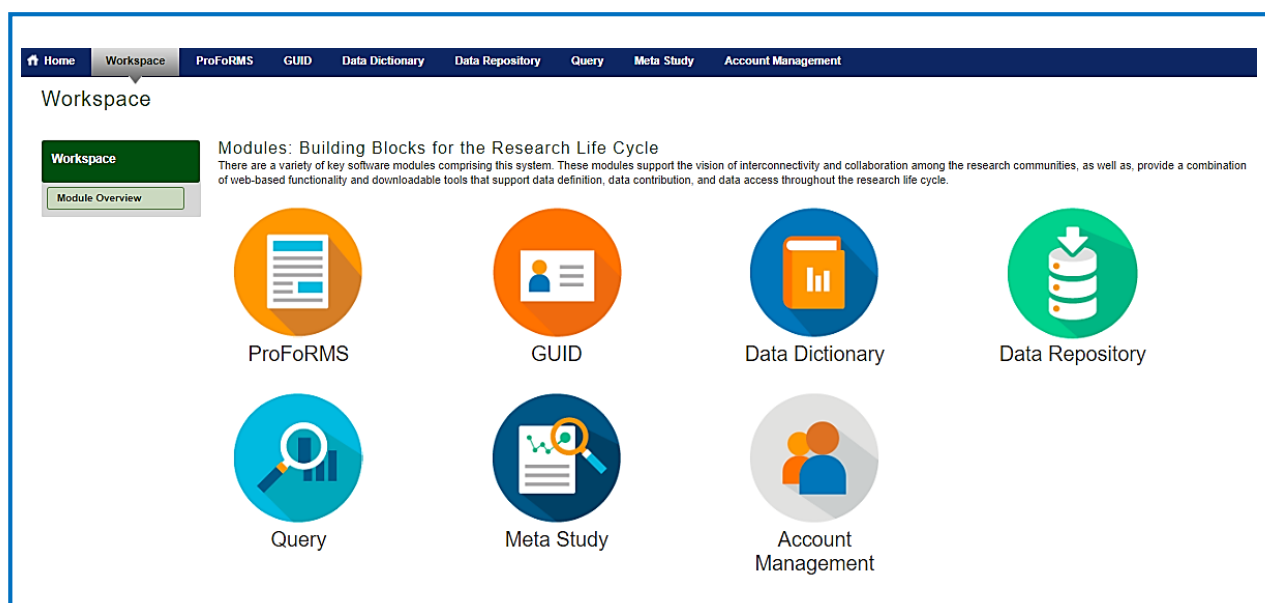
An example of a Pseudo-GUID is: **TBI_INVZG542YHV**An example of a Pseudo-GUID generated in the Multi-Tenant GUID server is: **NIH_INV78H8G0TJ8N**

6.4 USING THE GUID TOOL

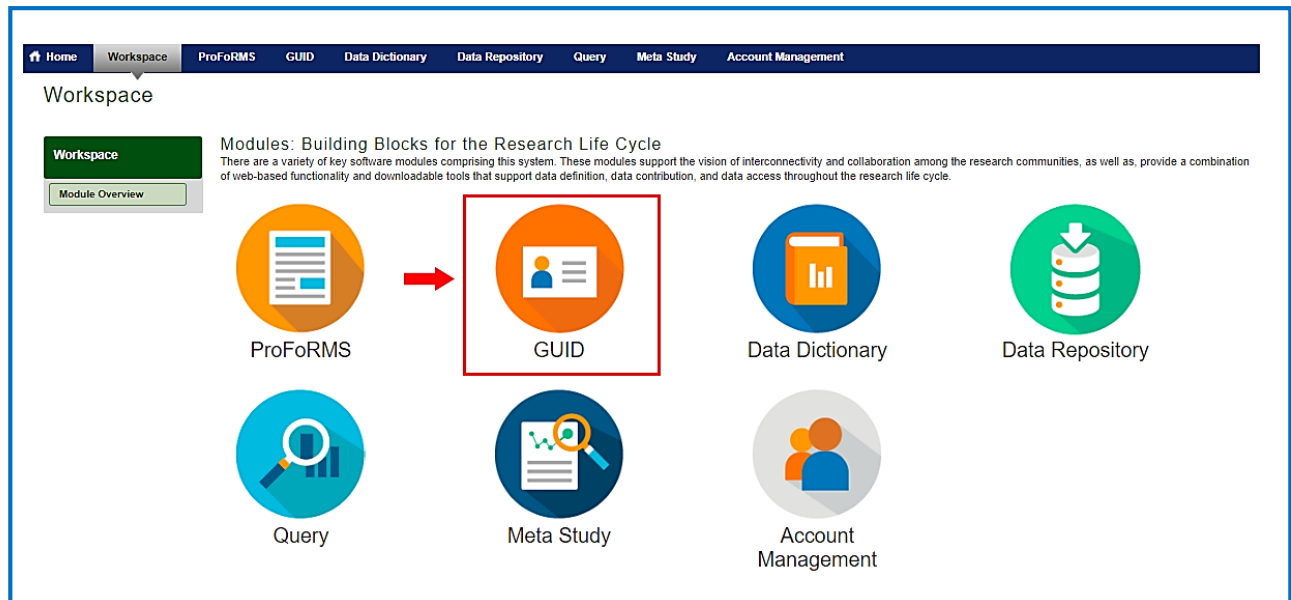
The GUID Client software is a web-based, JavaScript application and is accessible directly through your internet browser.

To access the **GUID** module: Perform the following actions:

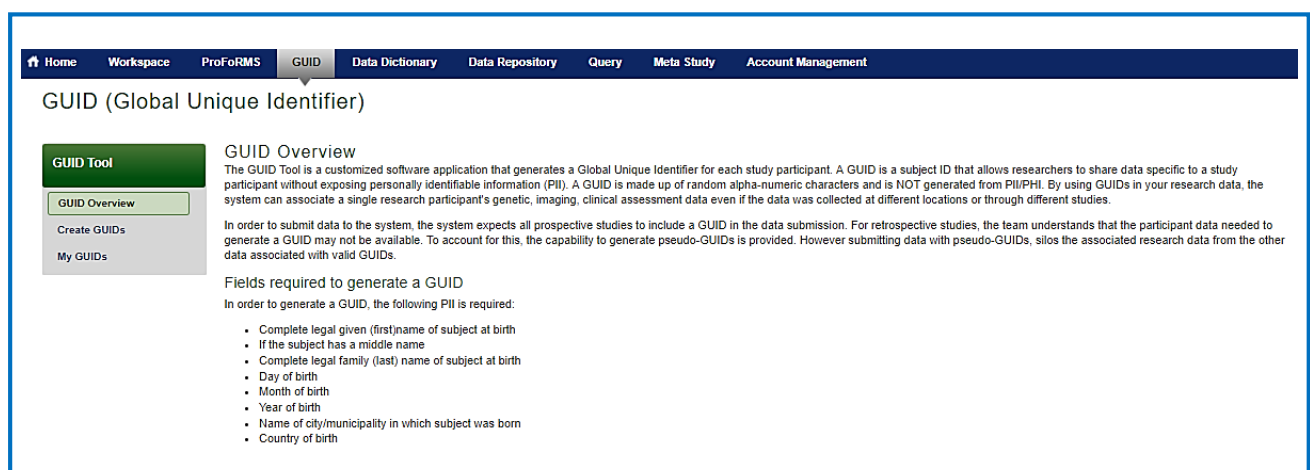
1. Log in and navigate to the **Workspace screen** where all modules you have access to are displayed.



2. Click the **GUID** module to enter the GUID Tool.



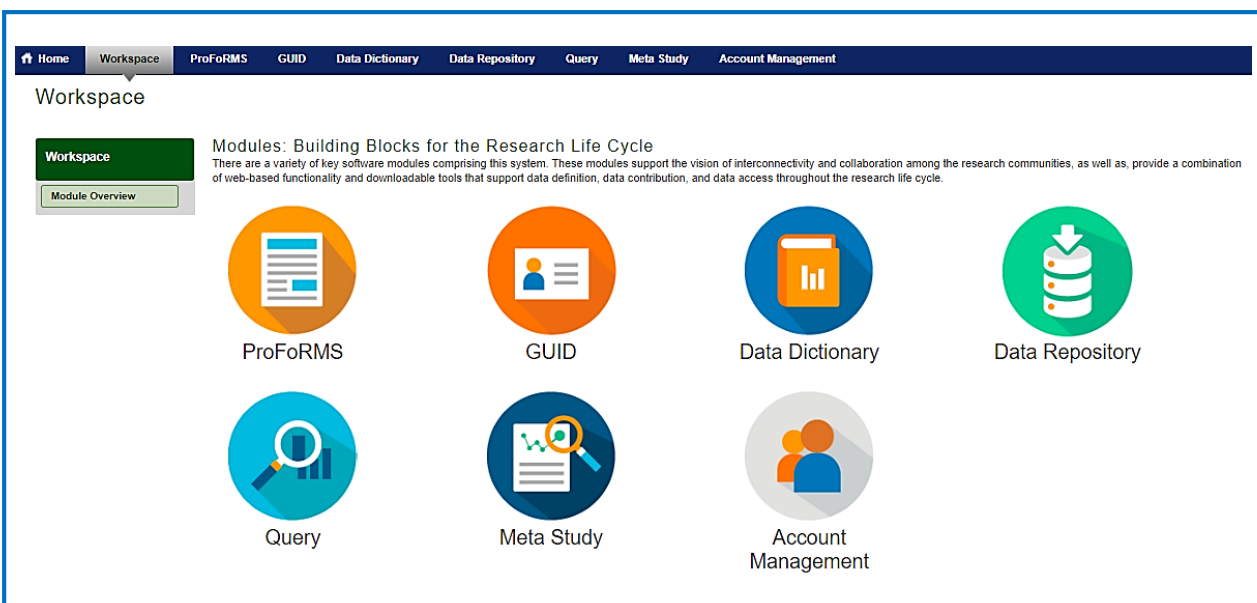
3. The **GUID** Overview page opens where you can learn more about the fields required to create a GUID, create GUIDs, View your GUIDs etc.



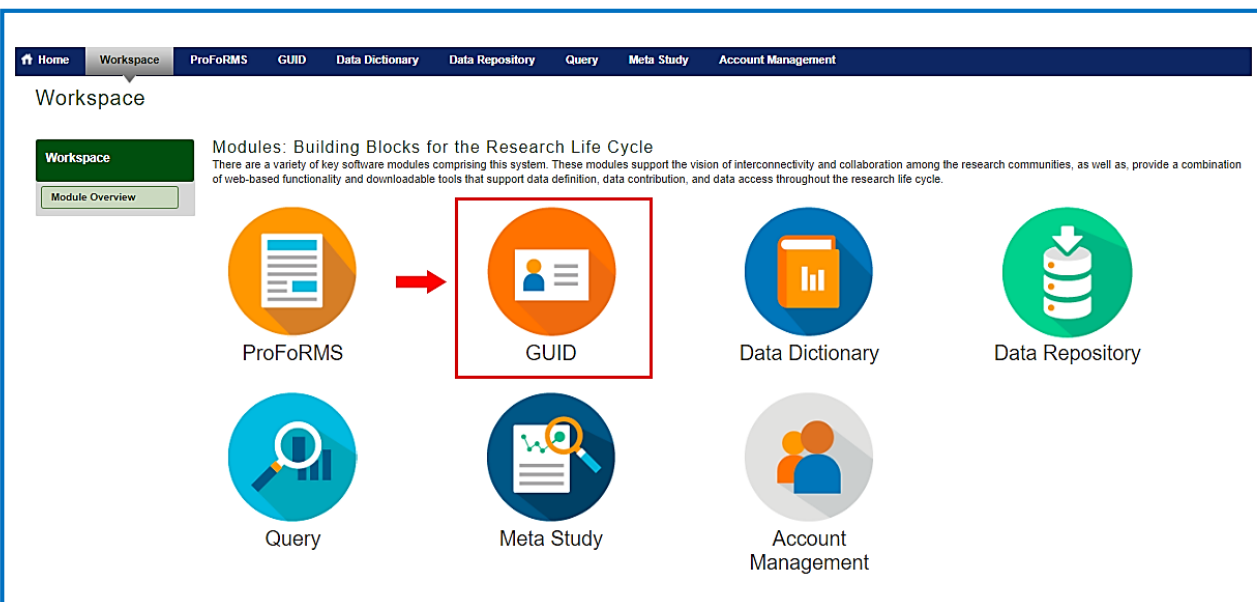
6.4.1 Creating a GUID

To Create a GUID: Perform the following actions:

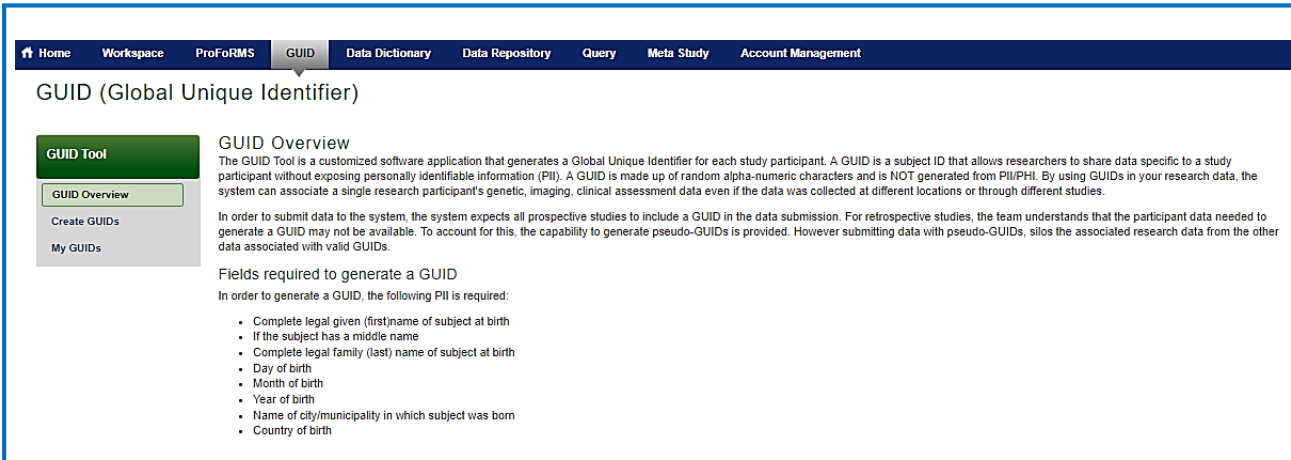
1. Log in and navigate to the **Workspace screen** where all modules you have access to are displayed.



2. Click the **GUID** module to enter the GUID Tool.



- The **GUID Overview** page opens where you can learn more about the fields required to generate a GUID, access the GUID creation tool, view your GUIDs, reference the GUID module user guide, etc.



GUID (Global Unique Identifier)

GUID Tool

- GUID Overview
- Create GUIDs
- My GUIDs

GUID Overview

The GUID Tool is a customized software application that generates a Global Unique Identifier for each study participant. A GUID is a subject ID that allows researchers to share data specific to a study participant without exposing personally identifiable information (PII). A GUID is made up of random alpha-numeric characters and is NOT generated from PII/PHI. By using GUIDs in your research data, the system can associate a single research participant's genetic, imaging, clinical assessment data even if the data was collected at different locations or through different studies.

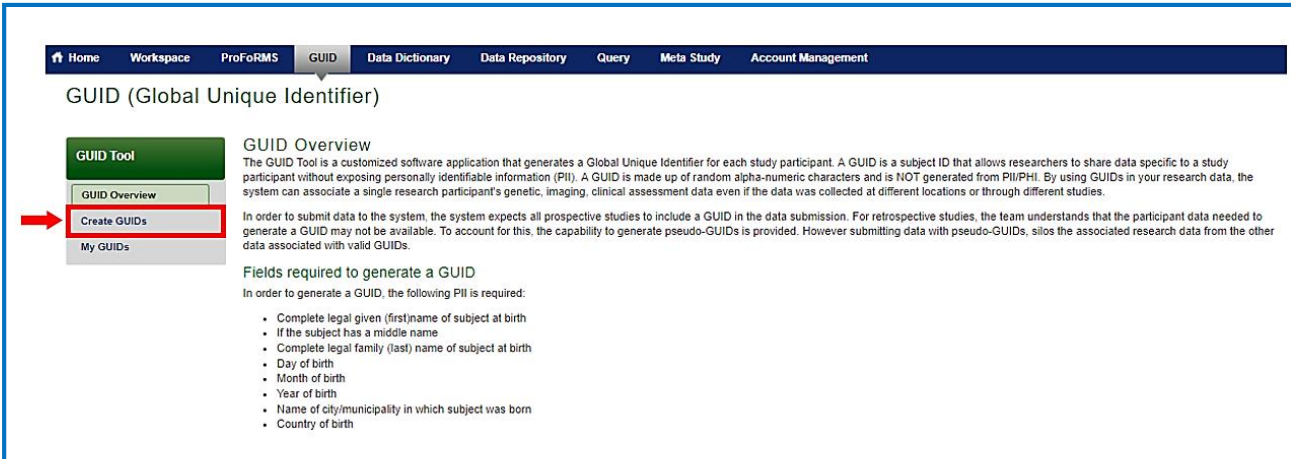
In order to submit data to the system, the system expects all prospective studies to include a GUID in the data submission. For retrospective studies, the team understands that the participant data needed to generate a GUID may not be available. To account for this, the capability to generate pseudo-GUIDs is provided. However submitting data with pseudo-GUIDs, silos the associated research data from the other data associated with valid GUIDs.

Fields required to generate a GUID

In order to generate a GUID, the following PII is required:

- Complete legal given (first) name of subject at birth
- If the subject has a middle name
- Complete legal family (last) name of subject at birth
- Day of birth
- Month of birth
- Year of birth
- Name of city/municipality in which subject was born
- Country of birth

- Click the **Create GUIDs** on the left-side tool bar. The Create GUIDs page opens.



GUID (Global Unique Identifier)

GUID Tool

- GUID Overview
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- My GUIDs

GUID Overview

The GUID Tool is a customized software application that generates a Global Unique Identifier for each study participant. A GUID is a subject ID that allows researchers to share data specific to a study participant without exposing personally identifiable information (PII). A GUID is made up of random alpha-numeric characters and is NOT generated from PII/PHI. By using GUIDs in your research data, the system can associate a single research participant's genetic, imaging, clinical assessment data even if the data was collected at different locations or through different studies.

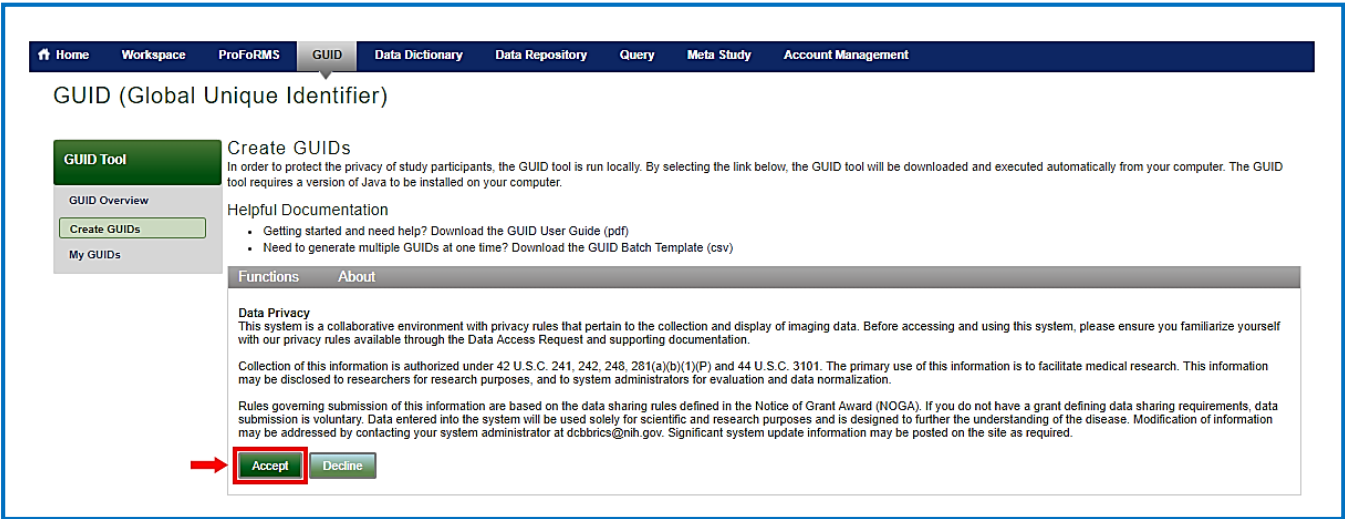
In order to submit data to the system, the system expects all prospective studies to include a GUID in the data submission. For retrospective studies, the team understands that the participant data needed to generate a GUID may not be available. To account for this, the capability to generate pseudo-GUIDs is provided. However submitting data with pseudo-GUIDs, silos the associated research data from the other data associated with valid GUIDs.

Fields required to generate a GUID

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- Complete legal family (last) name of subject at birth
- Day of birth
- Month of birth
- Year of birth
- Name of city/municipality in which subject was born
- Country of birth

- The Data Privacy user agreement will appear on the page. Read the agreement and Click **Accept** if you agree. The GUID Client will open and appears directly on the page.



- The **GUID Client** will open directly in the browser on the page. **Enter the participant's information (Subject's Personal Identifiable Information (PII))** into the appropriate fields. To ensure the information provided is accurate, the system requires duplicate data entry. Re-enter the **Subject's Personal Identifiable Information (PII)** to confirm the subject's information.

The screenshot shows the BRICS GUID (Global Unique Identifier) page with the "Create GUIDs" form. The navigation bar and sidebar are the same as in the previous screenshot. The main content area has a "Create GUIDs" section with a sub-header "Helpful Documentation" and a list of links: "Getting started and need help? Download the GUID User Guide (pdf)" and "Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)". Below this is a "Data Privacy" section with text explaining the system's purpose and privacy rules. At the bottom of the "Data Privacy" section, there are two buttons: "Accept" (highlighted with a red arrow) and "Decline".

GUID (Global Unique Identifier)

GUID Tool

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions **About**

Data Privacy

This system is a collaborative environment with privacy rules that pertain to the collection and display of imaging data. Before accessing and using this system, please ensure you familiarize yourself with our privacy rules available through the Data Access Request and supporting documentation.

Collection of this information is authorized under 42 U.S.C. 241, 242, 248, 281(a)(b)(1)(P) and 44 U.S.C. 3101. The primary use of this information is to facilitate medical research. This information may be disclosed to researchers for research purposes, and to system administrators for evaluation and data normalization.

Rules governing submission of this information are based on the data sharing rules defined in the Notice of Grant Award (NOGA). If you do not have a grant defining data sharing requirements, data submission is voluntary. Data entered into the system will be used solely for scientific and research purposes and is designed to further the understanding of the disease. Modification of information may be addressed by contacting your system administrator at dcbrics@nih.gov. Significant system update information may be posted on the site as required.

Accept **Decline**

Required Fields

- Complete legal given (first) name of the subject at birth
- Does the subject have a middle name?
- Complete additional (middle) name or names at birth
- Complete legal family (last) name of subject at birth
- Day of birth [1-31]
- Month of Birth
- Year of Birth [####]
- Name of city/municipality in which subject was born
- Country of Birth

Optional Fields

- Physical sex of subject at birth [M/F]
- Government Issued or National ID
- Country Issuing Government-Issued or National ID

GUID

Please Enter Subject's Information (PII)

No

Please Confirm (Re-Enter) the Subject's Information

No

Generate GUID **Copy GUID** **Copy GUID and PII** **Clear/New**

The required field names necessary to obtain a valid GUID are listed below:

- Complete legal given (first) name of the subject at birth
- Select YES if the subject DOES HAVE a Middle Name, NO otherwise
- Complete additional (middle) name or names at birth
- Complete legal family (last) name of subject at birth
- Day of birth [1—31]
- Month of birth [January-December]
- Year of birth [####]
- Name of city/municipality in which subject was born
- Country of birth

The following are additional fields that can be used, but are not required:

- Physical sex of subject at birth [Male/Female]
- Government Issued or National ID number
- Name of the country issuing the Government or National ID
- Organization/Cohort Association

7. To register and obtain the GUID, complete the following steps, starting in the left column:
 - a) Enter in the complete legal given (first) name of subject at birth;
 - b) Select Yes or No depending on whether or not the subject has a middle name. If yes, enter information in field 3;
 - c) Complete the required fields 4-9;
 - d) If information is available, complete the optional fields 10-12. Enter the subject's physical sex at birth into #10 field, the government issued or national ID number into #11 field (note that the list box in #12 field becomes available once data is entered into #11);
 - e) Select the country of issued ID from the list provided;
 - f) For PDBP only, select a value in the "Organization/Cohort Association" (field #13) to associate the GUID with a PDBP study, cohort, or other defined study component;
 - g) Enter the same information into the right column of the dialog box

8. After inputting the participant’s PII into both sets of fields, click the **Generate GUID** button. Note: Spaces, hyphens and apostrophes can be used in the non-numeric GUID fields in the dialog box and are stripped silently by the application.

Home Workspace ProFoRMS GUID Data Dictionary Data Repository Query Meta Study Account Management

GUID (Global Unique Identifier)

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions **About**

Required Fields

- Complete legal given (first) name of the subject at birth
- Does the subject have a middle name?
- Complete additional (middle) name or names at birth
- Complete legal family (last) name of subject at birth
- Day of birth [1-31]
- Month of Birth
- Year of Birth [####]
- Name of city/municipality in which subject was born
- Country of Birth

Optional Fields

- Physical sex of subject at birth [M/F]
- Government Issued or National ID
- Country Issuing Government-Issued or National ID

Please Enter Subject's Information (PII)

Paul
No
Smith
1
January
1957
Rockville
UNITED STATES
Male

Please Confirm (Re-Enter) the Subject's Information

Paul
No
Smith
1
January
1957
Rockville
UNITED STATES
Male

Generate GUID
Copy GUID
Copy GUID and PII
Clear/New

9. A popup window with the GUID information will appear if there was a successful GUID generation. Click the **OK** button to exit the dialog box.

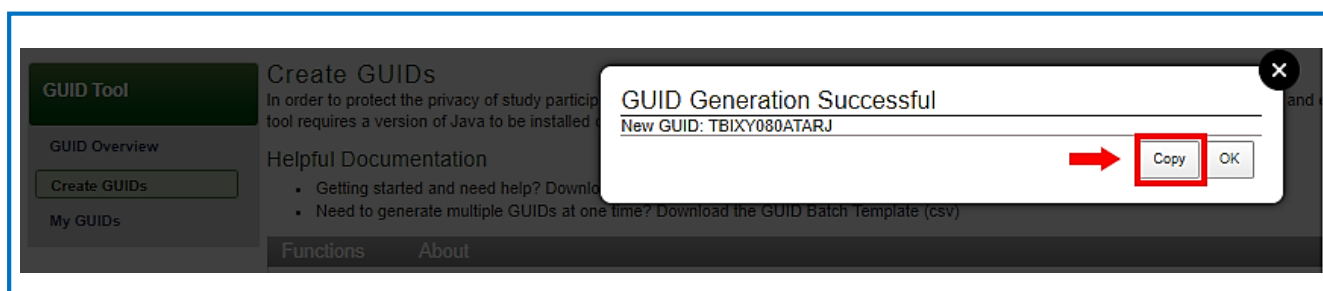
GUID Tool GUID Overview Create GUIDs My GUIDs

GUID Generation Successful

New GUID: TBIXY080ATARJ

Copy
OK

10. To copy the new GUID, you must press the “**Copy**” button to copy the GUID to the Clipboard from where you may paste the new GUID. **Note:** A Clipboard is a location in memory where the system saves information copied.

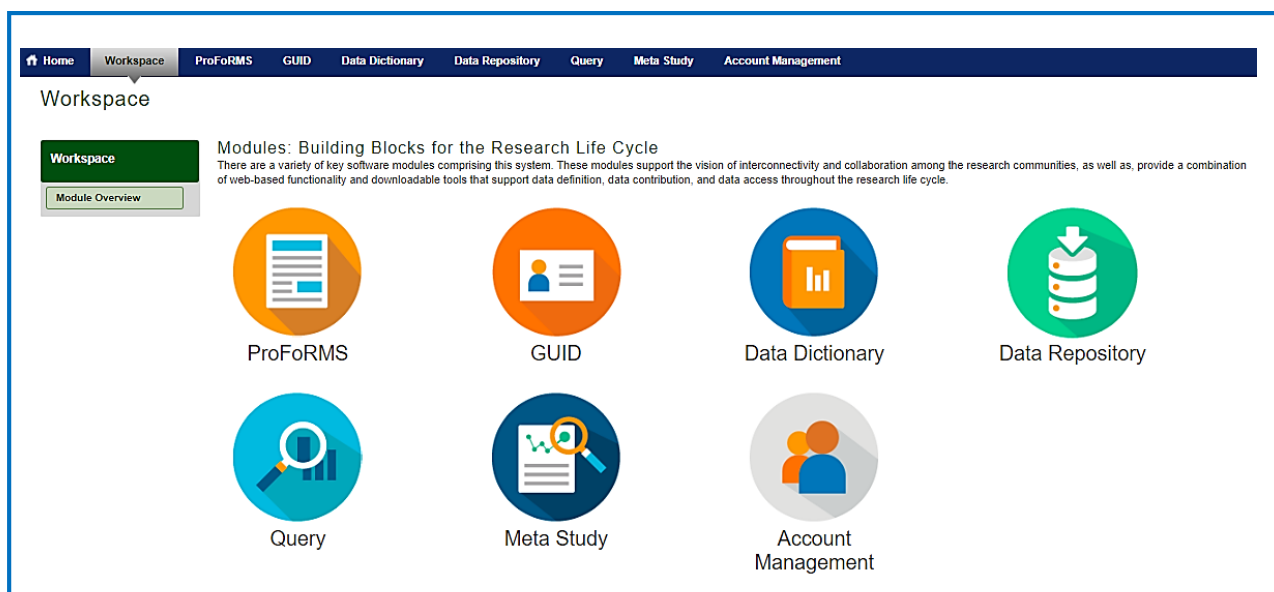


6.4.2 Creating Multiple GUIDs Using Batch CSV

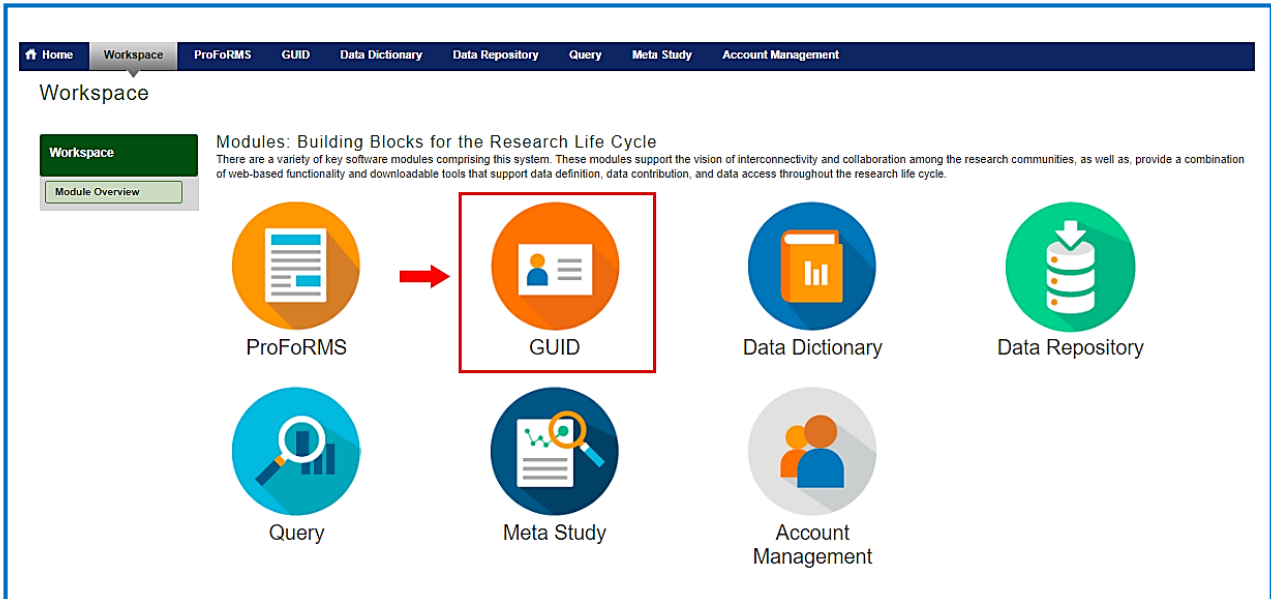
The batch capability allows a user to create multiple GUIDs at a time with the option of checking for similar already-entered PII. In order to create multiple GUIDs, you must download and use the GUID batch .csv template.

To Generate GUIDs for multiple Subjects using batch .csv: Perform the following actions:

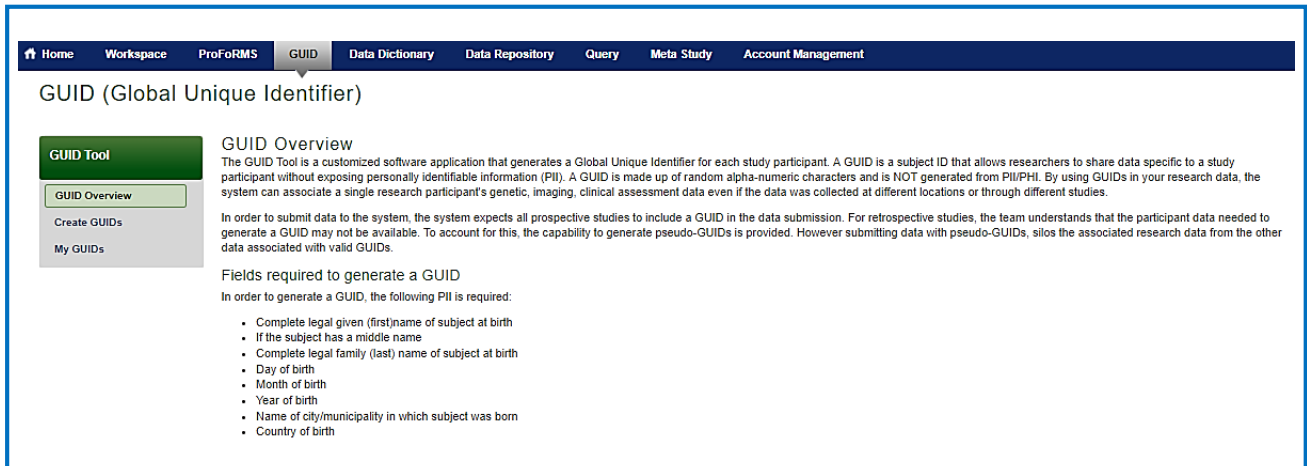
1. Log in and navigate to the **Workspace** screen where all modules you have access to are displayed.



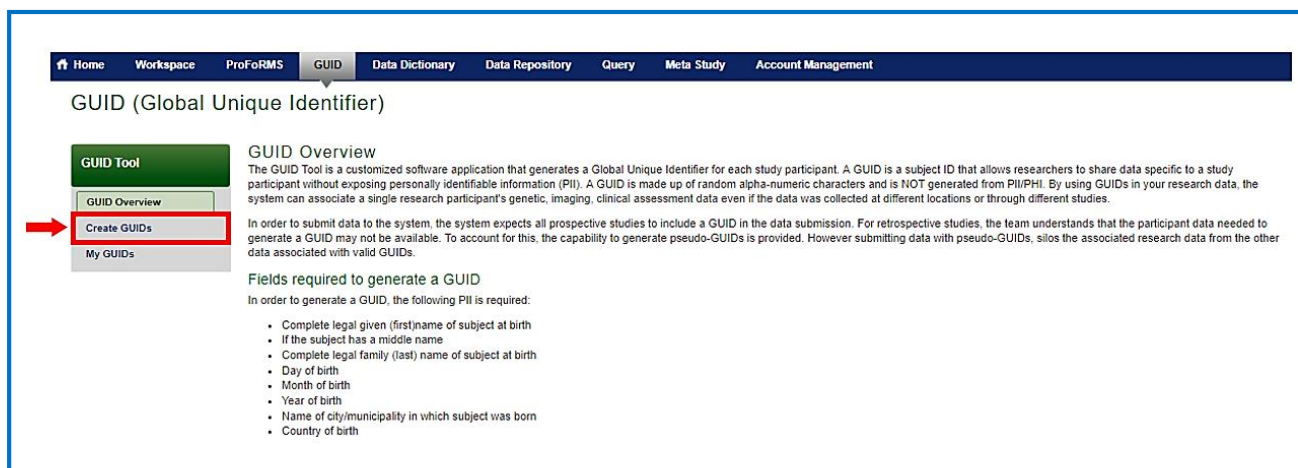
2. Click the **GUID** module to enter the GUID Tool.



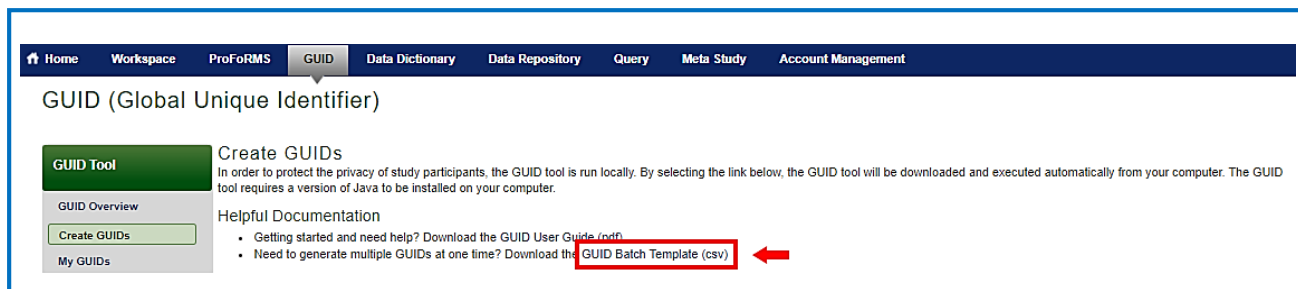
3. The **GUID Overview** page opens where you can learn more about the fields required to create a GUID, create GUIDs, and View your GUIDs etc.



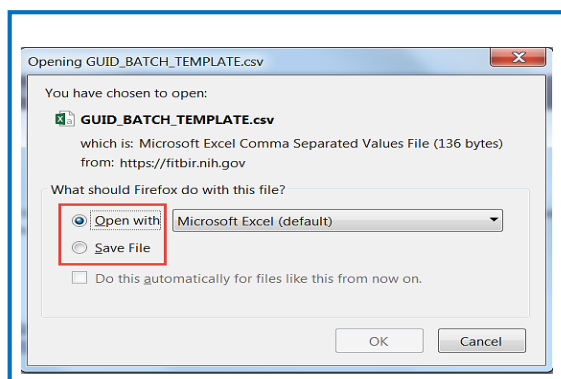
- Click the **“Create GUIDs”** on the left-side GUID Tool navigation. The **“Create GUIDs”** page appears with links to some helpful documentation.



- Click the [GUID Batch Template \(csv\)](#) to download the GUID Batch template to your local machine.



- The **GUID_BATCH_TEMPLATE** launcher opens. Select the Open with or Save File option to download the template.

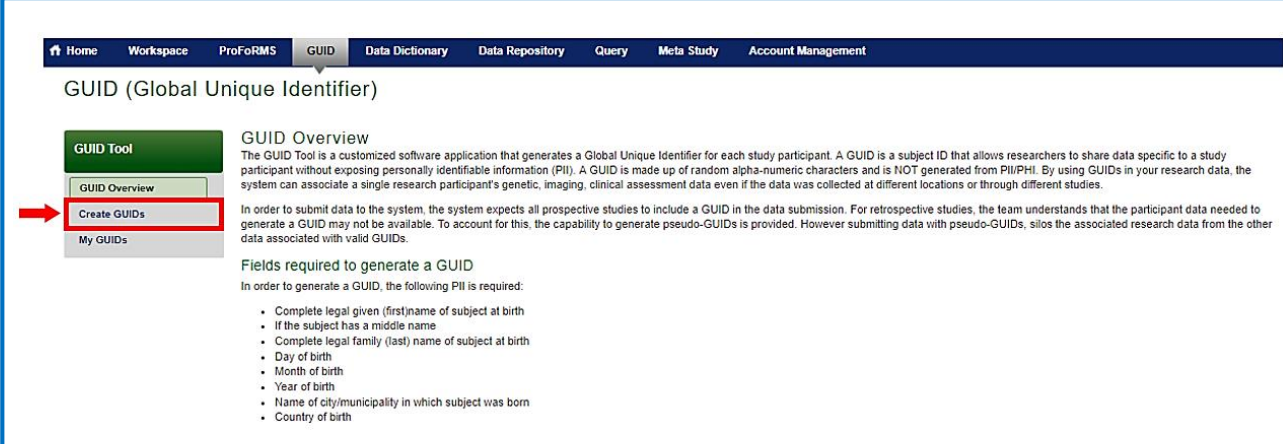


7. Upon successful download of the .csv template, Open the template and enter the participant's information into the proper columns. For descriptions of column headers, please refer to Section [6.3.1 PII Fields](#) above.

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	REFERENCE_ID	FIRST_NAME	MIDDLE_NAME	LAST_NAME	SUBJECT_HAS_MIDDLE_NAME	MOB	DOB	YOB	CITY_OF	COUNTRY	SEX	GIID	GIIDCountry
2	1	Thomas	Jacob	Lee	Yes	9	13	1988	dc	US	M	123-24-2455	US
3	2	Gerald	Dean	White	Yes	10	14	1989	dc	US		134-15-2114	US
4	3	Joe		Schmoe	No	11	12	1976	Bethesda	US			
5	4	Linda		Johnson	No	8	1	1980	Wheaton	US	F		
6													

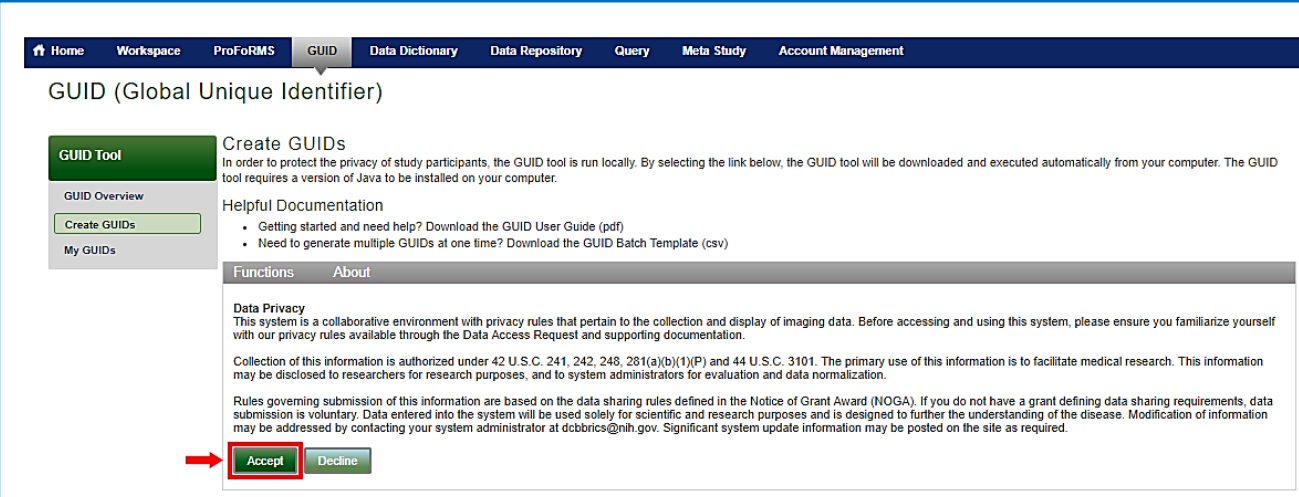
- ❖ Each row contains (1) participant's information
- ❖ The REFERENCE_ID (in cell A2) may be any alphanumeric identifier but must be unique within this batch. This ID will be provided along with the GUID after the batch process completes to ensure the proper GUID is associated with its input PII
- ❖ For MOB, use a numeric value (1-12)
- ❖ For COUNTRY_OF_BIRTH and GIIDCOUNTRY, please use the country codes listed in Appendix 6-A of the module. For United States, use US.
- ❖ GIID and GIIDCOUNTRY [Optional]
- ❖ For GIID, if Country issuing the ID is the United States, please submit data in this format ###-##-####
- ❖ Note: The "Organization/Cohort Association" field is not available for use when generating GUIDs using the batch GUID template. This field is only available when generating a GUID using the GUID client.
- ❖ Save the template in CSV format.

8. Click on the **Create GUIDs** option in the left-hand GUID Tool navigation.



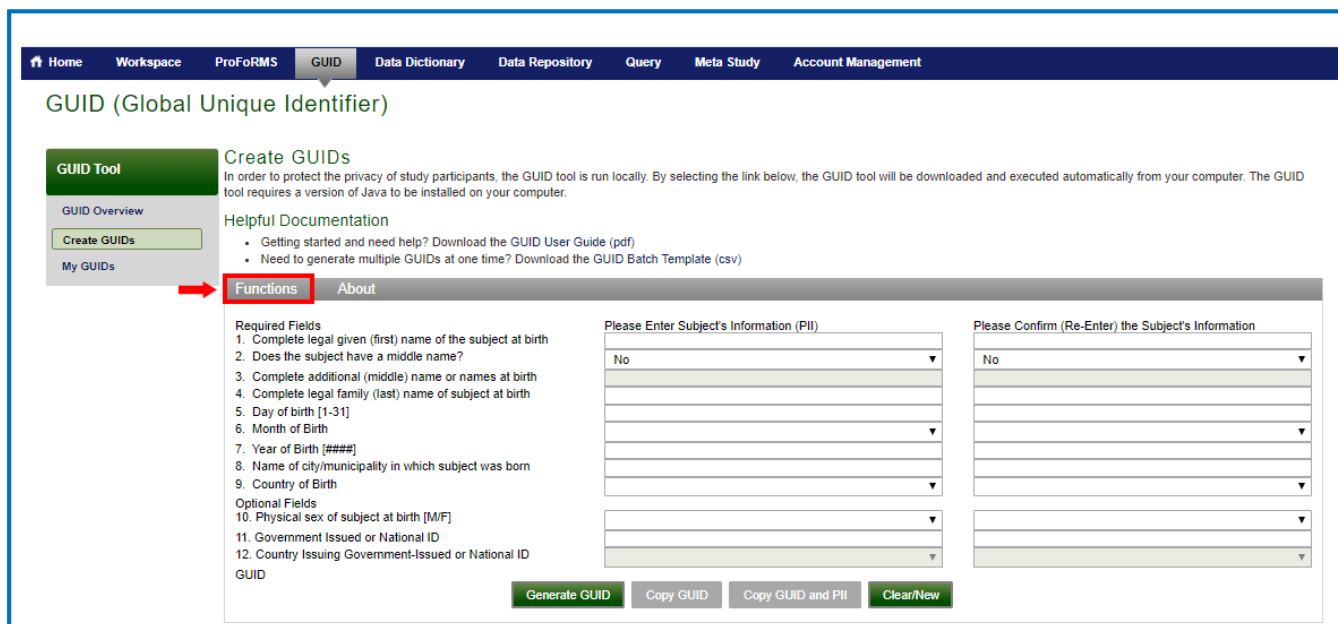
The screenshot shows the BRICS GUID Tool interface. The top navigation bar includes links for Home, Workspace, ProFoRMS, GUID, Data Dictionary, Data Repository, Query, Meta Study, and Account Management. The GUID section is active. On the left, a sidebar titled 'GUID Tool' contains links for GUID Overview, **Create GUIDs** (highlighted with a red box and a red arrow), and My GUIDs. The main content area displays the 'GUID Overview' section, which explains the purpose of the GUID tool and lists the fields required to generate a GUID: Complete legal given (first) name of subject at birth, If the subject has a middle name, Complete legal family (last) name of subject at birth, Day of birth, Month of birth, Year of birth, Name of city/municipality in which subject was born, and Country of birth.

9. The Data Privacy user agreement will appear on the page. Read the agreement and Click **Accept** if you agree. The GUID Client will open and appears directly on the page.



The screenshot shows the BRICS GUID Tool interface with the 'Create GUIDs' option selected. The main content area displays the 'Create GUIDs' section, which includes a 'Data Privacy' agreement. The agreement text states that the system is a collaborative environment with privacy rules and that data submission is voluntary. At the bottom of the agreement, there are two buttons: **Accept** (highlighted with a red box and a red arrow) and **Decline**.

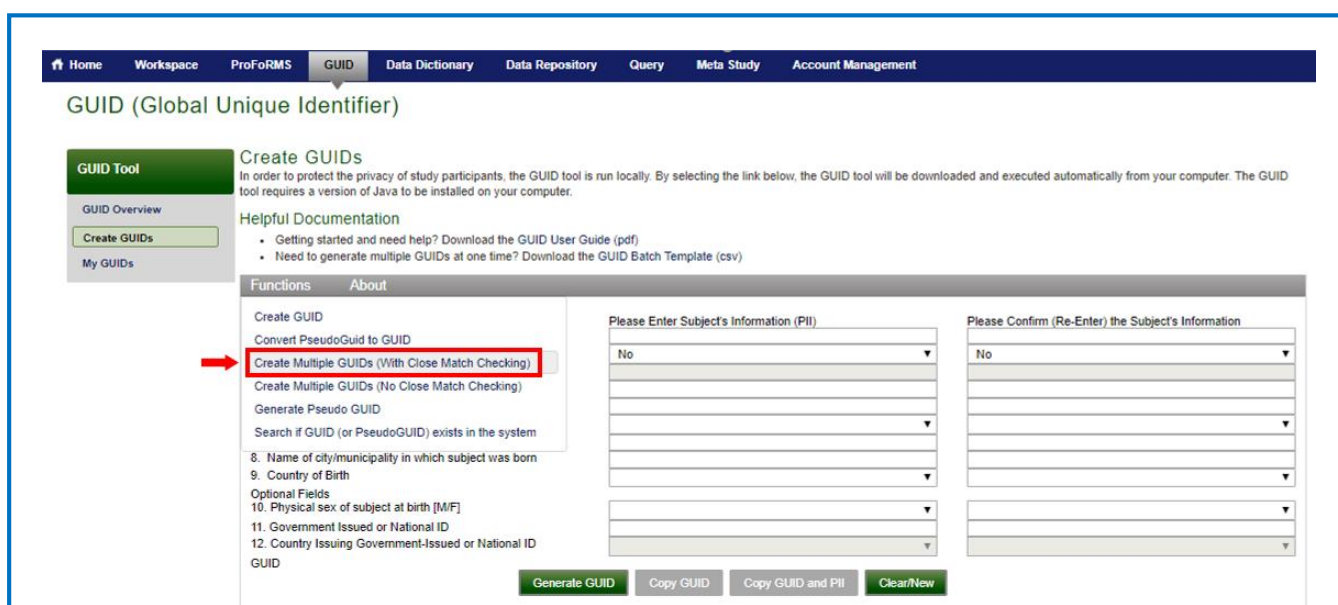
10. Select **Functions** in the GUID Client menu to open the drop-down menu.



11. Select **Create multiple GUIDs (With Close Match Checking)** as shown below:

Note: It is advised to always use this function first. Only use **Functions > Create multiple GUIDs (No Close Match Checking)** in the case when you are certain that the PII that has been entered is indeed correct (review all warnings line by line first). If this option is selected, the information entered will not be checked against pre-existing GUIDs.

Contact a member of your designated Operations team if needed before using this functionality.



12. Select **Choose File** and upload the desired .csv file containing the subject(s) information to upload.

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions
About

Select a file in the file input below to begin batch processing

Source File: Choose File No file chosen Status: Waiting on Input

Number of subjects successfully processed: 0	GUID
Reference ID	

Number of subjects processed with errors: 0	Error(s)
Reference ID	

13. When you upload the desired .csv, the GUID generation process will initiate automatically. The generated GUIDs will appear in the **Number of subjects successfully processed** table along with a quantity of successfully generated GUIDs.

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions
About

Select a file in the file input below to begin batch processing

Source File: Choose File No file chosen Status: Finished GUID batch request for C:\fakepath\GUID_BATCH_TEMPLATE_jm.csv

Number of subjects successfully processed: 3

Reference ID	GUID
2	TBIHP337FWXVC
3	TBIHU206FYKXZ
4	TBINE514UGTLP

Number of subjects processed with errors: 1	Error(s)
Reference ID	
1	A close match was found: Month of Birth. Current value: 11 If this PII is correct, you can submit it using the menu option "Create Multiple GUIDs (No Close Match Checking)"

Download Results

Errors that occurred during processing will appear in the **Number of subjects processed with errors** table along with a quantity of unsuccessfully generated GUIDs.

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions
About

Select a file in the file input below to begin batch processing

Source File: Choose File No file chosen Status: Finished GUID batch request for C:\fakepath\GUID_BATCH_TEMPLATE_jm.csv

Number of subjects successfully processed: 3

Reference ID	GUID
2	TBIHP337FWXVC
3	TBIHU206FYKXZ
4	TBINE514UGTLP

Number of subjects processed with errors: 1

Reference ID	Error(s)
1	A close match was found: Month of Birth. Current value: 11 If this PII is correct, you can submit it using the menu option "Create Multiple GUIDs (No Close Match Checking)"

Download Results

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NOTES: If subsequent requests for multiple GUIDs are sent, the required wait time between sending each GUID request containing 50 participants is 30 seconds.

Reference the **Status** field for additional details and confirmation that the .csv file selected uploaded correctly.

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions About

Select a file in the file input below to begin batch processing

Source File: Choose File No file chosen

Number of subjects successfully processed: 0

Reference ID	GUID

Number of subjects processed with errors: 0

Reference ID	Error(s)

Download Results

Status: Finished GUID batch request for C:\fakepath\GUID_BATCH_TEMPLATE.csv

14. To obtain a full report of errors, potential matches, and/or other information pertaining to the GUID generation process, click the **Download Results** link.

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions About

Select a file in the file input below to begin batch processing

Source File: Choose File No file chosen

Number of subjects successfully processed: 3

Reference ID	GUID
2	TBIHP337FWXVC
3	TBIHU206FYKXZ
4	TBINE514UGTLP

Number of subjects processed with errors: 1

Reference ID	Error(s)
1	A close match was found: Month of Birth. Current value: 11 If this PII is correct, you can submit it using the menu option "Create Multiple GUIDs (No Close Match Checking)"

Download Results

Status: Finished GUID batch request for C:\fakepath\GUID_BATCH_TEMPLATE_jm.csv

15. **Save** the .csv report file, which will include the following default filename prefix: "output_guid." The GUID output file will provide a list of successfully generated GUIDs along with errors and notations:

A	B	C	D
referenceId	guid	serverShortName	notes
1			A close match was found: Month of Birth. Current value: 11
2	TBIHP337FWXVC	FITBIR	
3	TBIHU206FYKXZ	FITBIR	
4	TBINE514UGTLP	FITBIR	

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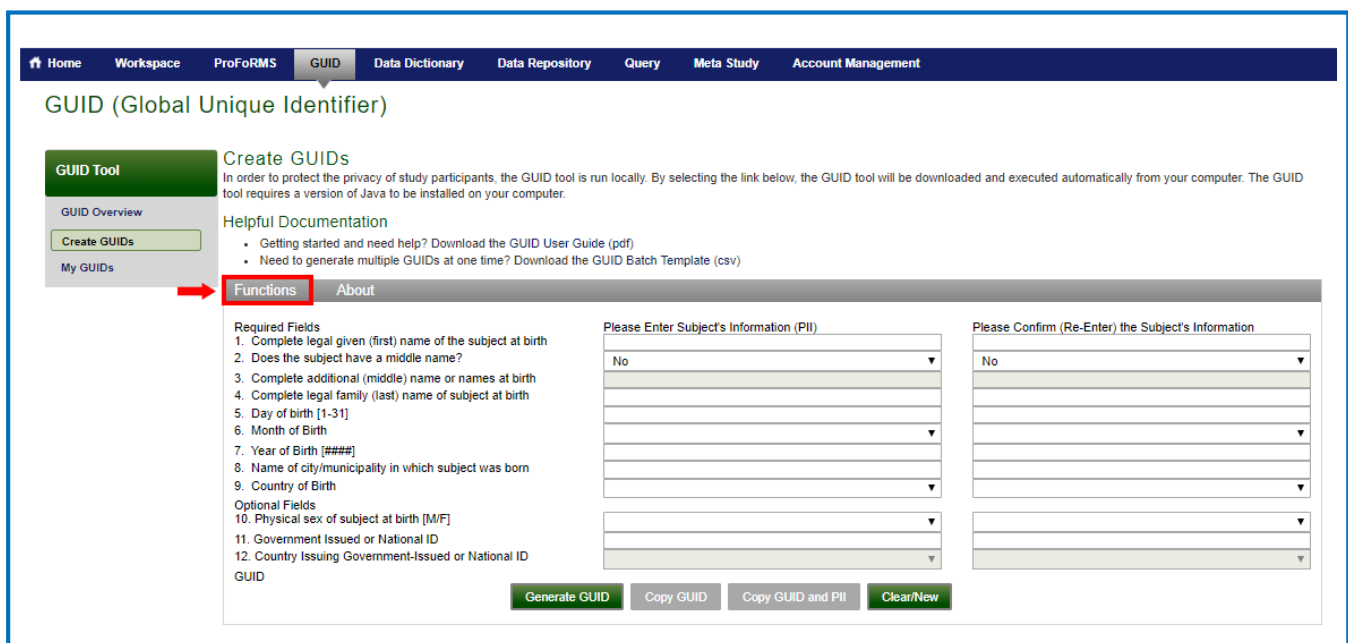
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NOTE: If you receive a “close match was found” note, but the subject information provided is accurate, retry the upload using the **Create Multiple GUIDs (No Close Match Checking)** option in the Functions menu.

6.4.3 Generate a Pseudo GUID

To Generate a Pseudo-GUID: Perform the following actions:

1. Navigate to the **GUID Client**. (For instructions navigating to the GUID Client refer to [Section 6.4](#) above). In the GUID Client, Select **Functions** to open the drop-down menu.



GUID (Global Unique Identifier)

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions About

Required Fields

1. Complete legal given (first) name of the subject at birth
2. Does the subject have a middle name?
3. Complete additional (middle) name or names at birth
4. Complete legal family (last) name of subject at birth
5. Day of birth [1-31]
6. Month of Birth
7. Year of Birth [####]
8. Name of city/municipality in which subject was born
9. Country of Birth

Optional Fields

10. Physical sex of subject at birth [M/F]
11. Government Issued or National ID
12. Country Issuing Government-Issued or National ID

GUID

Please Enter Subject's Information (PII)

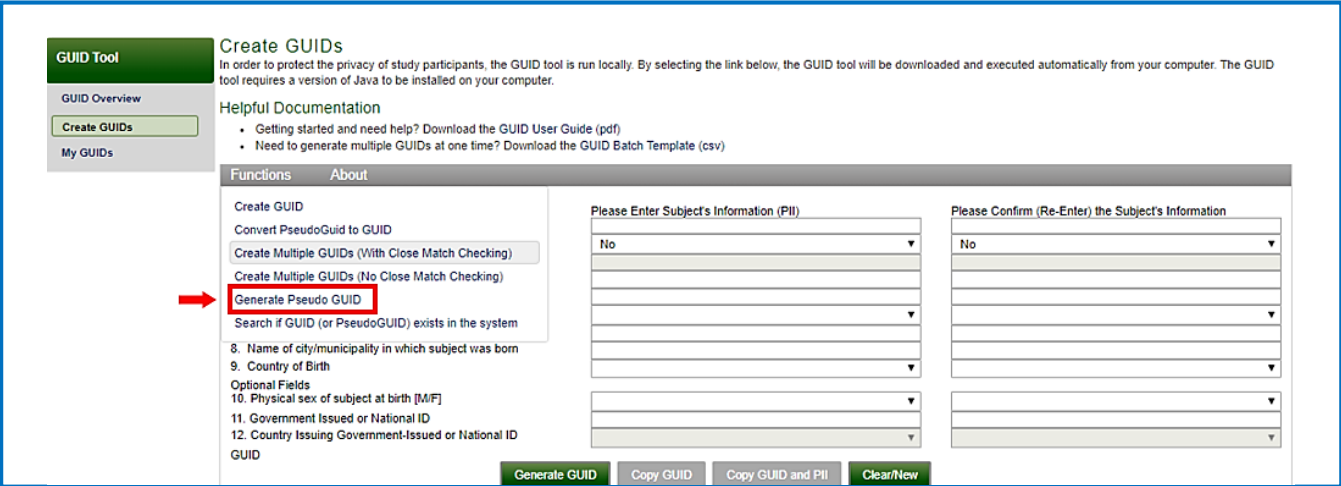
No

Please Confirm (Re-Enter) the Subject's Information

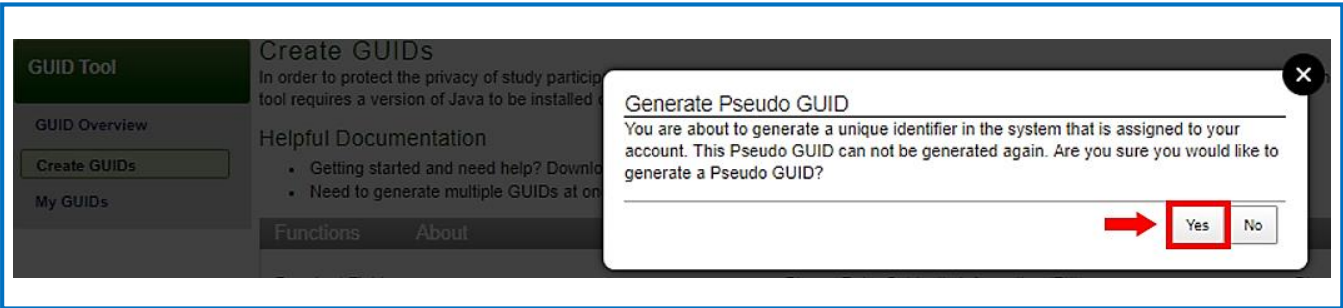
No

Generate GUID **Copy GUID** **Copy GUID and PII** **Clear/New**

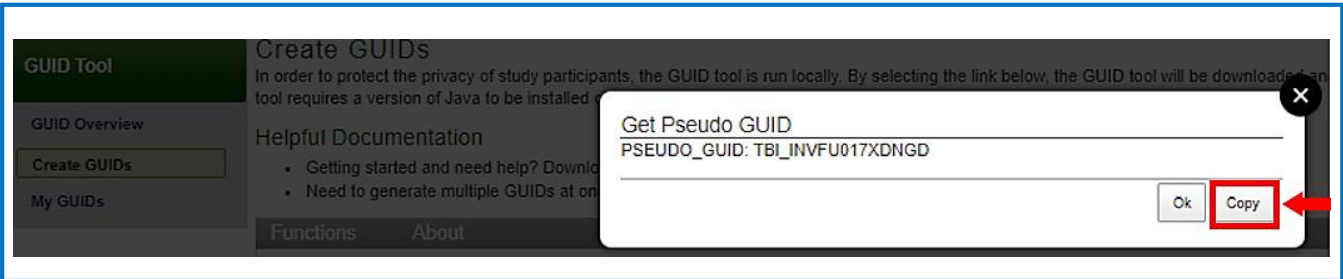
2. Select **Generate Pseudo GUID** as shown below.



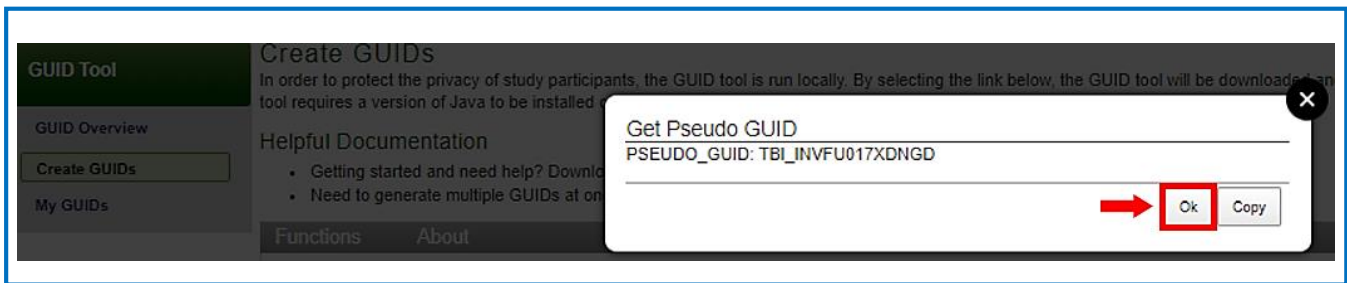
3. The **Generate Pseudo GUID** dialog box appears with the following message: **“You are about to generate a unique identifier in the system that is assigned to your account. This Pseudo GUID can not be generated again. Are you sure you would like to generate a Pseudo GUID?”** Click the **Yes** button to generate the Pseudo-GUID.



4. The **Get Pseudo GUID** dialog box appears with the Pseudo GUID. Click the **Copy** button to “Copy” the Pseudo GUID to the Clipboard from where you may paste the Pseudo GUID from. **Note:** Only one Pseudo GUID can be saved to the clipboard at a time.



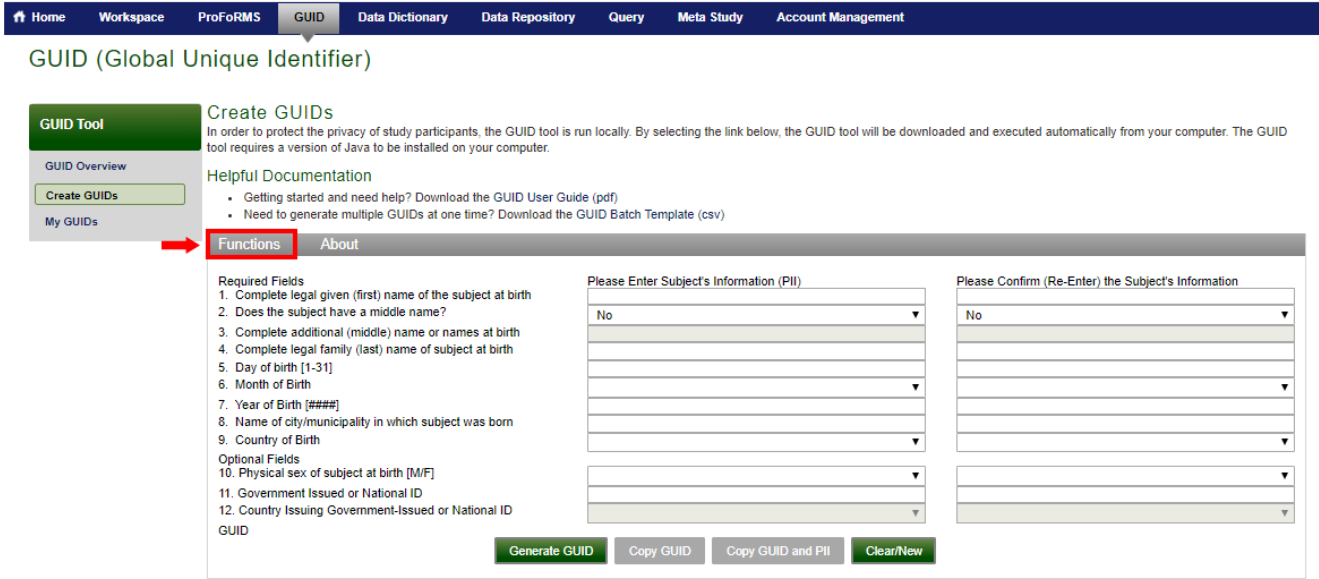
5. Click the **OK** button to exit Get Pseudo GUID dialog box.



6.4.4 Converting Pseudo GUIDs to valid GUID

To Convert a Pseudo-GUID to valid GUID: Perform the following actions:

1. Navigate to the **GUID Client**. (For instructions navigating to the GUID Client Dialog Box refer to [Section 6.4](#) above). In the GUID Client, Select **Functions** to open the drop-down menu.



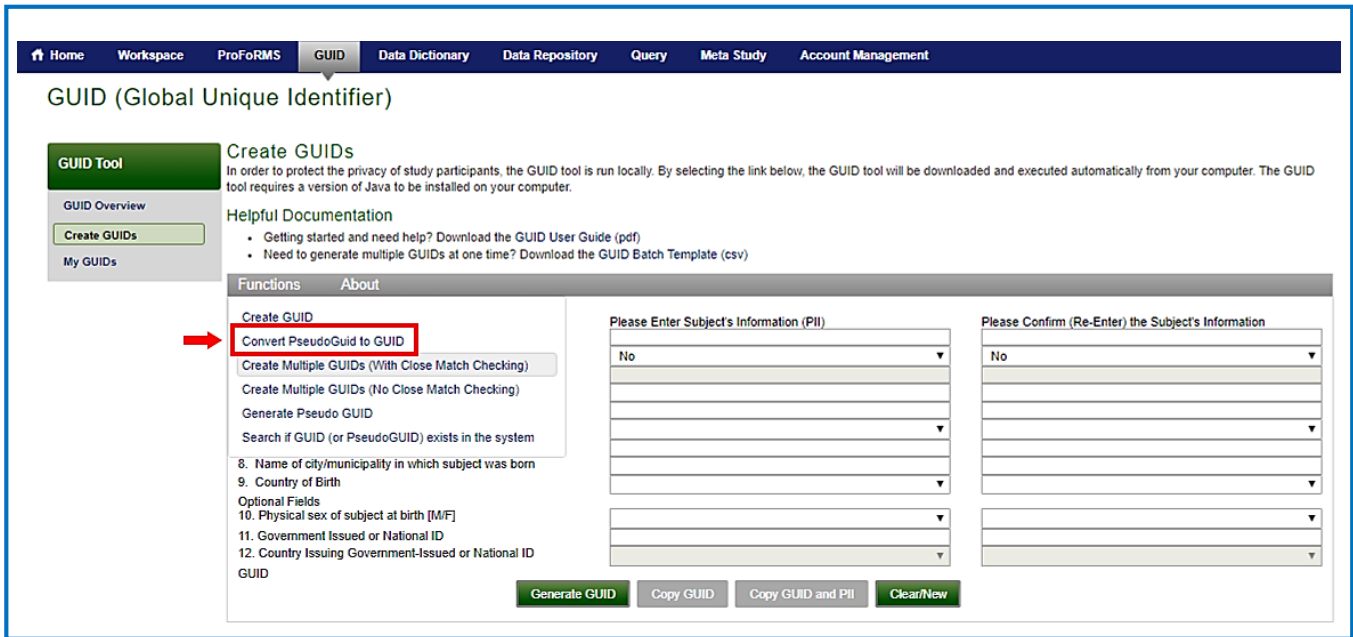
The screenshot shows the 'GUID (Global Unique Identifier)' application. The top navigation bar includes 'Home', 'Workspace', 'ProFORMS', 'GUID', 'Data Dictionary', 'Data Repository', 'Query', 'Meta Study', and 'Account Management'. The 'GUID' tab is active. The left sidebar shows 'GUID Tool', 'GUID Overview', 'Create GUIDs', and 'My GUIDs'. The 'Functions' tab is selected, displaying a list of required fields for subject information. The 'Generate GUID' button is highlighted.

Required Fields	Please Enter Subject's Information (PII)	Please Confirm (Re-Enter) the Subject's Information
1. Complete legal given (first) name of the subject at birth		
2. Does the subject have a middle name?		
3. Complete additional (middle) name or names at birth		
4. Complete legal family (last) name of subject at birth		
5. Day of birth [1-31]		
6. Month of Birth		
7. Year of Birth [####]		
8. Name of city/municipality in which subject was born		
9. Country of Birth		
Optional Fields		
10. Physical sex of subject at birth [M/F]		
11. Government Issued or National ID		
12. Country Issuing Government-Issued or National ID		

GUID

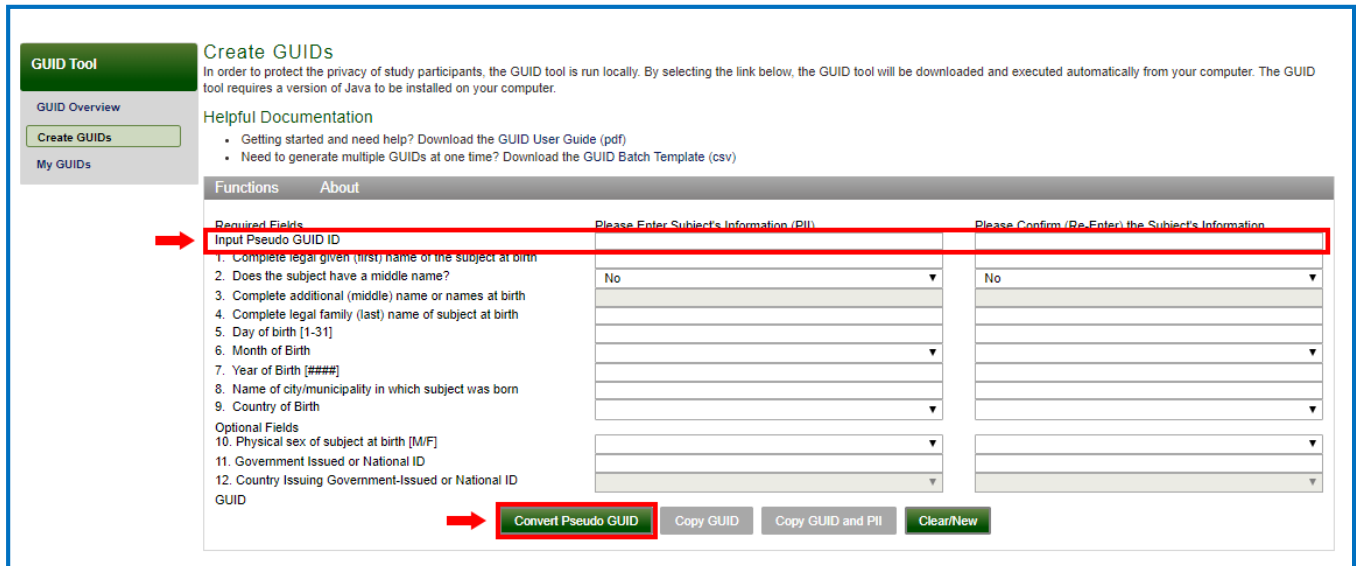
Generate GUID **Copy GUID** **Copy GUID and PII** **Clear/New**

2. Select the **Convert Pseudo GUID to GUID** option.



The screenshot shows the BRICS GUID Tool interface. The 'GUID Tool' sidebar on the left has 'Create GUIDs' selected. The main area is titled 'GUID (Global Unique Identifier)' and 'Create GUIDs'. It includes a 'Helpful Documentation' section with links to the 'GUID User Guide (pdf)' and 'GUID Batch Template (csv)'. The 'Functions' tab is active, and the 'Convert Pseudo GUID to GUID' option is highlighted with a red box and a red arrow. The 'Please Enter Subject's Information (PII)' and 'Please Confirm (Re-Enter) the Subject's Information' sections are visible, each with a 'No' dropdown and several empty input fields. At the bottom, there are buttons for 'Generate GUID', 'Copy GUID', 'Copy GUID and PII', and 'Clear/New'.

3. The **Convert Pseudo GUID to GUID** dialog box appears. Notice that the **Generate GUID** button is de-activated and a **Convert Pseudo GUID** activated.



The screenshot shows the BRICS GUID Tool interface after clicking the 'Convert Pseudo GUID to GUID' option. The 'Required Fields' section is expanded, and the 'Input Pseudo GUID ID' field is highlighted with a red box and a red arrow. The 'Please Enter Subject's Information (PII)' and 'Please Confirm (Re-Enter) the Subject's Information' sections are visible, each with a 'No' dropdown and several empty input fields. At the bottom, the 'Generate GUID' button is now disabled (grayed out), and the 'Convert Pseudo GUID' button is now active (green). The 'Copy GUID', 'Copy GUID and PII', and 'Clear/New' buttons remain visible.

- To convert a **Pseudo-GUID** to a valid **GUID**, enter the Pseudo-GUID and the participant's information. Click the **Convert Pseudo GUID** button. This process is similar to the process of entering participant information to generate a new/valid GUID. If any of the required fields are missing, an error will appear.

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions

About

Required Fields

Input Pseudo GUID ID

- Complete legal given (first) name of the subject at birth
- Does the subject have a middle name?
- Complete additional (middle) name or names at birth
- Complete legal family (last) name of subject at birth
- Day of birth [1-31]
- Month of Birth
- Year of Birth [####]
- Name of city/municipality in which subject was born
- Country of Birth

Optional Fields

- Physical sex of subject at birth [M/F]
- Government Issued or National ID
- Country Issuing Government-Issued or National ID

GUID

Please Enter Subject's Information (PII)

Please Confirm (Re-Enter) the Subject's Information

➔

Convert Pseudo GUID

Copy GUID

Copy GUID and PII

Clear/New

- The **GUID** generation dialog window appears with the newly converted GUID. Click **Copy** to copy the GUID or **OK** to close the dialog box.

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions

About

GUID Generation Successful
✕

New GUID: TBIVE258DBBVE

Copy

OK

NOTE: If you accidentally click **OK** and close the **GUID Generation Successful** dialog box, you can reference and/or copy the generated GUID from the GUID Client. The newly generated GUID will appear in the **GUID** field and can be copied using the **Copy GUID** button.

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GUID Tool
[GUID Overview](#)
[Create GUIDs](#)
[My GUIDs](#)

Create GUIDs

In order to protect the privacy of study participants, the GUID tool is run locally. By selecting the link below, the GUID tool will be downloaded and executed automatically from your computer. The GUID tool requires a version of Java to be installed on your computer.

Helpful Documentation

- Getting started and need help? Download the GUID User Guide (pdf)
- Need to generate multiple GUIDs at one time? Download the GUID Batch Template (csv)

Functions **About**

Required Fields

Input Pseudo GUID ID

- Complete legal given (first) name of the subject at birth
- Does the subject have a middle name?
- Complete additional (middle) name or names at birth
- Complete legal family (last) name of subject at birth
- Day of birth [1-31]
- Month of Birth
- Year of Birth (####)
- Name of city/municipality in which subject was born
- Country of Birth

Optional Fields

- Physical sex of subject at birth [M/F]
- Government Issued or National ID
- Country Issuing Government-Issued or National ID

Please Enter Subject's Information (PII)

TBI_INVFU017XDNGD
John
No
Doe
1
January
1961
Bethesda
UNITED STATES
Male

Please Confirm (Re-Enter) the Subject's Information

TBI_INVFU017XDNGD
John
No
Doe
1
January
1961
Bethesda
UNITED STATES
Male

GUID TBIIVE258DBBVE

Copy GUID

Copy GUID and PII

Clear/New

6.4.5 My GUIDs

To View My GUIDs: Perform the following actions:

- Log in and navigate to the **Workspace** screen where all modules you have access to are displayed.
- Click the **GUID** module to enter the GUID Tool.

Home Workspace ProFoRMS GUID Data Dictionary Data Repository Query Meta Study Account Management

Workspace

Workspace
[Module Overview](#)

Modules: Building Blocks for the Research Life Cycle

There are a variety of key software modules comprising this system. These modules support the vision of interconnectivity and collaboration among the research communities, as well as, provide a combination of web-based functionality and downloadable tools that support data definition, data contribution, and data access throughout the research life cycle.


 ProFoRMS


GUID


 Data Dictionary


 Data Repository


 Query


 Meta Study


 Account Management

- On the **GUID Overview** page click the “**My GUIDs**” link in the left-hand GUID Tool navigation. The “**My GUIDs**” page displays a table list of all GUIDs and Pseudo GUIDs that you have registered.

Home Workspace ProFoRMS GUID Data Dictionary Data Repository Query Meta Study Account Management

GUID (Global Unique Identifier)

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

GUID Overview

The GUID Tool is a customized software application that generates a Global Unique Identifier for each study participant. A GUID is a subject ID that allows researchers to share data specific to a study participant without exposing personally identifiable information (PII). A GUID is made up of random alpha-numeric characters and is NOT generated from PII/PHI. By using GUIDs in your research data, the system can associate a single research participant's genetic, imaging, clinical assessment data even if the data was collected at different locations or through different studies.

In order to submit data to the system, the system expects all prospective studies to include a GUID in the data submission. For retrospective studies, the team understands that the participant data needed to generate a GUID may not be available. To account for this, the capability to generate pseudo-GUIDs is provided. However submitting data with pseudo-GUIDs, silos the associated research data from the other data associated with valid GUIDs.

Fields required to generate a GUID

In order to generate a GUID, the following PII is required:

- Complete legal given (first)name of subject at birth
- If the subject has a middle name
- Complete legal family (last) name of subject at birth
- Day of birth
- Month of birth
- Year of birth
- Name of city/municipality in which subject was born
- Country of birth

- By default, the table is filtered to display “Mine Only” which are GUIDs that have been registered by you. You can change the filter to “Show All” which will display GUIDs registered to your account and those registered to your Organization.

Home Workspace ProFoRMS GUID Data Dictionary Data Repository Query Meta Study Account Management

GUID (Global Unique Identifier)

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

My GUIDs

The table below displays a list of all GUIDs that you have registered from the one-way hashed PII information as well as PseudoGUIDs your organization has registered.

Download

Mine Only

←

Search:

ID	TYPE	ENTITY	ORGANIZATION REGISTERED BY	USER REGISTERED BY	DATE REGISTERED	LINKED TO
TBIHP337FWXVC	GUID	FITBIR	NIH	Meckley, Jon	2019-03-11	
TBIHU206FYKXZ	GUID	FITBIR	NIH	Meckley, Jon	2019-03-11	
TBINE514UGTLP	GUID	FITBIR	NIH	Meckley, Jon	2019-03-11	
TBIVE258DBBVE	GUID	FITBIR	NIH	Meckley, Jon	2019-03-11	TBI_INVFU017XDNGD
TBIXY080ATARJ	GUID	FITBIR	NIH	Meckley, Jon	2019-03-11	
TBI_INVFU017XDNGD	PseudoGUID	FITBIR	NIH	Meckley, Jon	2019-03-11	TBIVE258DBBVE

Showing 1 to 6 of 6 entries
First Previous 1 Next Last

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NOTE: The following filters are available on the “My GUIDs” table:

- **Mine Only** – GUIDs and Pseudo GUIDs that you have registered (User Registered By)
 - **Show All** – GUIDs and Pseudo GUIDs that you have registered and/or have been registered by your Organization (Organization Registered By)
 - **GUIDs** – Filters the table (Type column) to only show valid GUIDs
 - **Pseudo GUIDs** – Filters the table (Type column) to only show Pseudo GUIDs
 - **Converted Pseudo GUIDs** – Filters the table to only show Pseudo GUIDs that have been converted into valid GUIDs. The valid GUID will be displayed in the “Linked To” column.
 - **Unconverted Pseudo GUIDs** – Filters the table to only show Pseudo GUIDs that have not been converted to valid GUIDs; there will be no value in the “Linked To” column.
5. For users with access to the Multi-Tenant GUID, “matching” or “linked” GUIDs will be identified with an “(i)” icon: [NIHAG610HYEMT\(i\)](#). This is an indicator that the registered GUID is linked to an existing GUID within the Multi-Tenant GUID server. Clicking the icon will provide additional details including the [Entity], [User], and [Date Registered] that is associated with the linked GUID. **Note:** No study data and/or dataset information is provided.

GUID Tool

GUID Overview

Create GUIDs

My GUIDs

GUID Admin

My GUIDs

The table below displays a list of all GUIDs that you have registered from the one-way hashed PII information as well as PseudoGUIDs your organization has registered.

Download

Mine Only

All

Search:

ID	TYPE	ENTITY	ORGANIZATION REGISTERED BY	USER REGISTERED BY	DATE REGISTERED	LINKED TO
NIADEMOHR393KVU	GUID	NIA	NIH	Meckley, Jon	2018-02-16	
NIADEMOJZ994CH4	GUID	NIA	NIH	Meckley, Jon	2018-02-16	
NIADEMOJZ994CH4	GUID	NIA	NIH	Meckley, Jon	2018-10-01	
NIADEMO_INVUK774FC1	PseudoGUID	NIA	NIH	Meckley, Jon	2018-02-16	
NIHAG610HYEMT	GUID	NIA	NIH	Meckley, Jon	2018-12-06	
NIHJE855KLZCA	GUID	NIA	NIH	Meckley, Jon	2018-12-06	

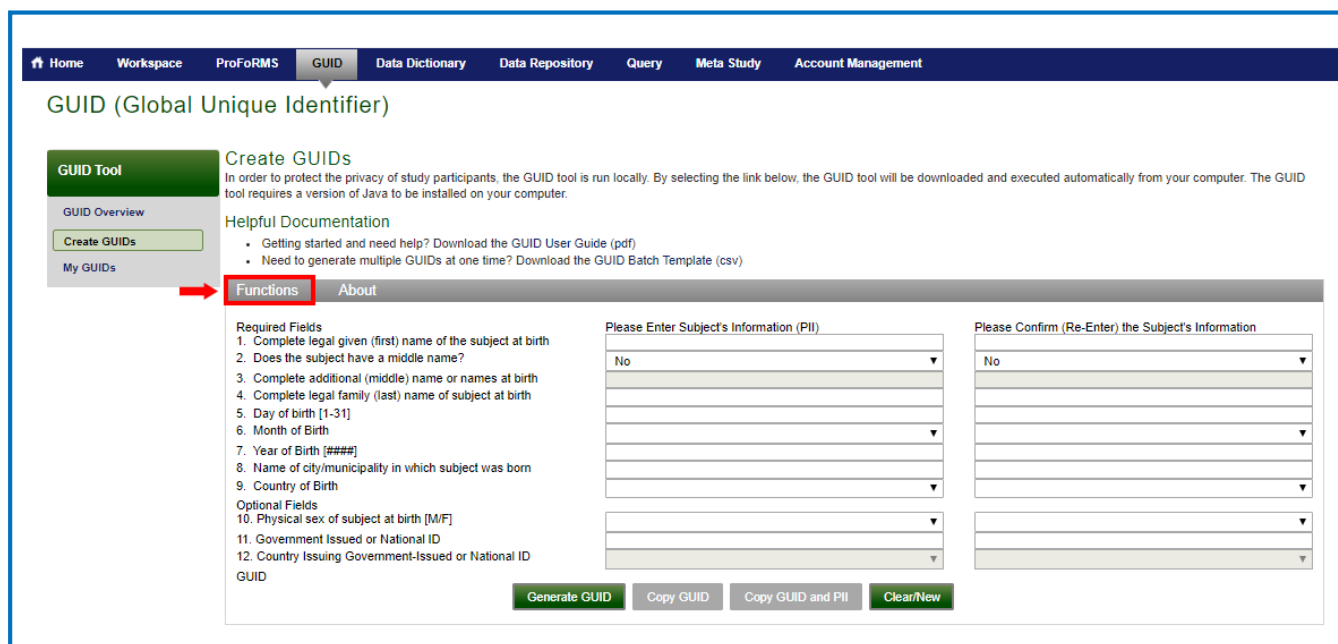
Showing 1 to 6 of 6 entries (filtered from 156 total entries)

FirstPrevious1NextLast

6.4.6 Searching if GUID (or Pseudo GUID) Exists

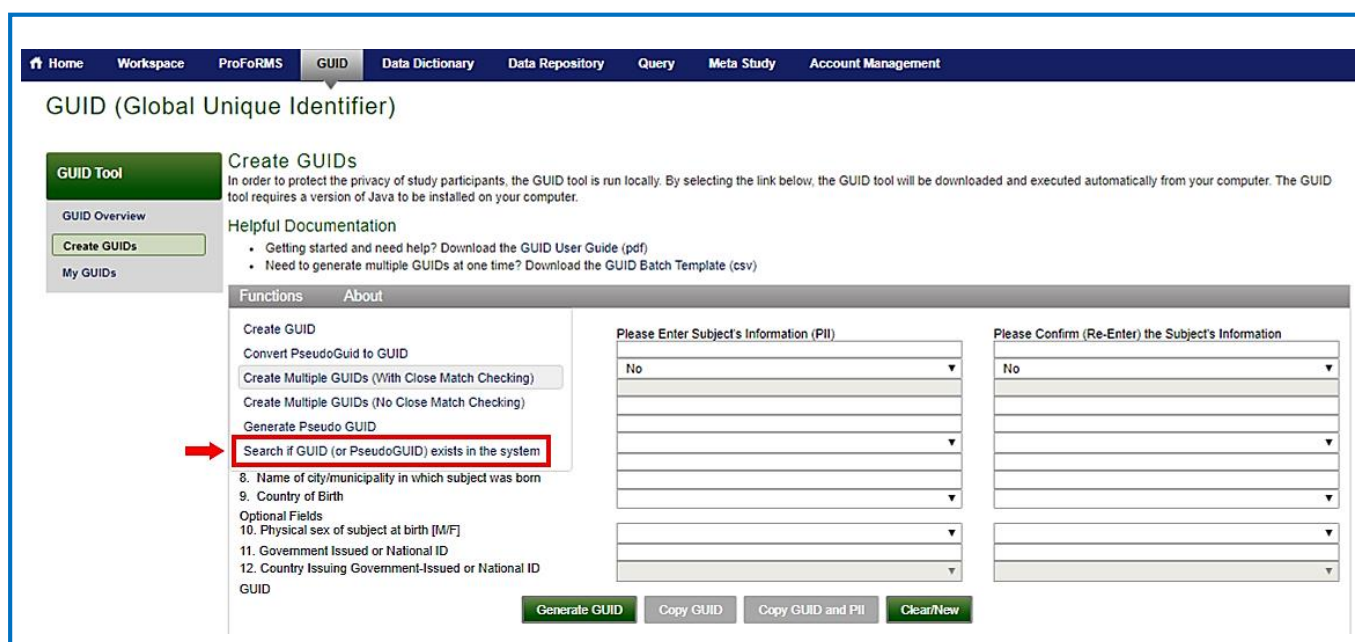
To Check if a GUID (or Pseudo GUID) already exists: Perform the following actions:

1. Navigate to the **GUID Client**. (For instructions navigating to the GUID Client refer to [Section 6.4](#) above). The **GUID Client** opens. Select **Functions** to open the drop-down menu.



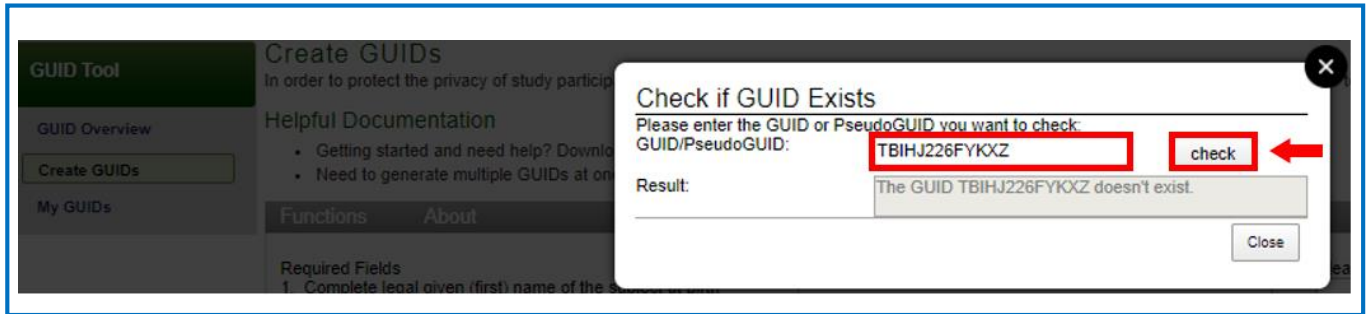
The screenshot shows the GUID Client interface. The top navigation bar includes Home, Workspace, ProFORMS, GUID, Data Dictionary, Data Repository, Query, Meta Study, and Account Management. The main heading is "GUID (Global Unique Identifier)". On the left, there is a sidebar with "GUID Tool" and "My GUIDs". The "GUID Tool" section has a "Create GUIDs" button. The "My GUIDs" section has a "Functions" button highlighted with a red box and an arrow pointing to it. The "Functions" dropdown menu is open, showing options: "Create GUID", "Convert PseudoGUID to GUID", "Create Multiple GUIDs (With Close Match Checking)", "Create Multiple GUIDs (No Close Match Checking)", "Generate Pseudo GUID", and "Search if GUID (or PseudoGUID) exists in the system". The "Search if GUID (or PseudoGUID) exists in the system" option is highlighted with a red box. The "About" tab is also visible. The main content area shows "Required Fields" and "Optional Fields" for creating a GUID, along with input fields for "Please Enter Subject's Information (PII)" and "Please Confirm (Re-Enter) the Subject's Information".

2. Select **Search if GUID (or Pseudo GUID) exists in the system** as shown below.



This screenshot is identical to the previous one, showing the GUID Client interface with the "Search if GUID (or Pseudo GUID) exists in the system" option highlighted in the "Functions" dropdown menu.

3. The **Check if GUID Exists on the Server** dialog box appears. Enter the GUID or Pseudo GUID in the GUID/PseudoGUID field, and click the **Check** button. The result appears in the Result field.



6.5 Accessing the Multi-Tenant GUID Server

Researchers participating in the Multi-Tenant GUID server who want access to another Entity’s GUIDs, need to initiate a request through the Entity’s Accounts Module. Please contact a member of your designated Operations team for additional details.

6.6 APPENDIX 6A – COUNTRY CODES

Country	Country Code
UNITED STATES	US
AFGHANISTAN	AF
ÅLAND ISLANDS	AX
ALBANIA	AL
ALGERIA	DZ
AMERICAN SAMOA	AS
ANDORRA	AD
ANGOLA	AO
ANGUILLA	AI
ANTARCTICA	AQ
ANTIGUA AND BARBUDA	AG
ARGENTINA	AR
ARMENIA	AM
ARUBA	AW
AUSTRALIA	AU
AUSTRIA	AT
AZERBAIJAN	AZ
BAHAMAS	BS
BAHRAIN	BH
BANGLADESH	BD
BARBADOS	BB
BELARUS	BY
BELGIUM	BE
BELIZE	BZ
BENIN	BJ
BERMUDA	BM
BHUTAN	BT
BOLIVIA	BO
BONAIRE, SINT EUSTATIUS, SABA	BQ
BOSNIA AND HERZEGOVINA	BA
BOTSWANA	BW
BOUVET ISLAND	BV
BRAZIL	BR
BRITISH INDIAN OCEAN TERRITORY	IO
BRUNEI DARUSSALAM	BN
BULGARIA	BG

Country	Country Code
BURKINA FASO	BF
BURUNDI	BI
CAMBODIA	KH
CAMEROON	CM
CANADA	CA
CAPE VERDE	CV
CAYMAN ISLANDS	KY
CENTRAL AFRICAN REPUBLIC	CF
CHAD	TD
CHILE	CL
CHINA	CN
CHRISTMAS ISLAND	CX
COCOS (KEELING) ISLANDS	CC
COLOMBIA	CO
COMOROS	KM
CONGO	CG
CONGO, THE DEMOCRATIC REPUBLIC OF THE	CD
COOK ISLANDS	CK
COSTA RICA	CR
CÔTE D'IVOIRE	CI
CROATIA	HR
CUBA	CU
CYPRUS	CY
CZECH REPUBLIC	CZ
DENMARK	DK
DJIBOUTI	DJ
DOMINICA	DM
DOMINICAN REPUBLIC	DO
ECUADOR	EC
EGYPT	EG
EL SALVADOR	SV
EQUATORIAL GUINEA	GQ
ERITREA	ER
ESTONIA	EE
ETHIOPIA	ET
FALKLAND ISLANDS (MALVINAS)	FK
FAROE ISLANDS	FO
FIJI	FJ

Country	Country Code
FINLAND	FI
FRANCE	FR
FRENCH GUIANA	GF
FRENCH POLYNESIA	PF
FRENCH SOUTHERN TERRITORIES	TF
GABON	GA
GAMBIA	GM
GEORGIA	GE
GERMANY	DE
GHANA	GH
GIBRALTAR	GI
GREECE	GR
GREENLAND	GL
GRENADA	GD
GUADELOUPE	GP
GUAM	GU
GUATEMALA	GT
GUERNSEY	GG
GUINEA	GN
GUINEA-BISSAU	GW
GUYANA	GY
HAITI	HT
HEARD ISLAND AND MCDONALD ISLANDS	HM
HOLY SEE (VATICAN CITY STATE)	VA
HONDURAS	HN
HONG KONG	HK
HUNGARY	HU
ICELAND	IS
INDIA	IN
INDONESIA	ID
IRAN, ISLAMIC REPUBLIC OF	IR
IRAQ	IQ
IRELAND	IE
ISLE OF MAN	IM
ISRAEL	IL
ITALY	IT
JAMAICA	JM

Country	Country Code
JAPAN	JP
JERSEY	JE
JORDAN	JO
KAZAKHSTAN	KZ
KENYA	KE
KIRIBATI	KI
KOREA, DEMOCRATIC PEOPLE'S REPUBLIC OF	KP
KOREA, REPUBLIC OF	KR
KOSOVO	XK
KUWAIT	KW
KYRGYZSTAN	KG
LAO PEOPLE'S DEMOCRATIC REPUBLIC	LA
LATVIA	LV
LEBANON	LB
LESOTHO	LS
LIBERIA	LR
LIBYAN ARAB JAMAHIRIYA	LY
LIECHTENSTEIN	LI
LITHUANIA	LT
LUXEMBOURG	LU
MACAO	MO
MACEDONIA, THE FORMER YUGOSLAV REPUBLIC OF	MK
MADAGASCAR	MG
MALAWI	MW
MALAYSIA	MY
MALDIVES	MV
MALI	ML
MALTA	MT
MARSHALL ISLANDS	MH
MARTINIQUE	MQ
MAURITANIA	MR
MAURITIUS	MU
MAYOTTE	YT
MEXICO	MX
MICRONESIA, FEDERATED STATES OF	FM
MOLDOVA, REPUBLIC OF	MD
MONACO	MC
MONGOLIA	MN

Country	Country Code
MONTENEGRO	ME
MONTSERRAT	MS
MOROCCO	MA
MOZAMBIQUE	MZ
MYANMAR	MM
NAMIBIA	NA
NAURU	NR
NEPAL	NP
NETHERLANDS	NL
NETHERLANDS ANTILLES	AN
NEW CALEDONIA	NC
NEW ZEALAND	NZ
NICARAGUA	NI
NIGER	NE
NIGERIA	NG
NIUE	NU
NORFOLK ISLAND	NF
NORTHERN MARIANA ISLANDS	MP
NORWAY	NO
OMAN	OM
PAKISTAN	PK
PALAU	PW
PALESTINIAN TERRITORY, OCCUPIED	PS
PANAMA	PA
PAPUA NEW GUINEA	PG
PARAGUAY	PY
PERU	PE
PHILIPPINES	PH
PITCAIRN	PN
POLAND	PL
PORTUGAL	PT
PUERTO RICO	PR
RÉUNION	RE
ROMANIA	RO
RUSSIAN FEDERATION	RU
RWANDA	RW
SAINT BARTHÉLEMY	BL

Country	Country Code
SAINT HELENA	SH
SAINT KITTS AND NEVIS	KN
SAINT LUCIA	LC
SAINT MARTIN	MF
SAINT PIERRE AND MIQUELON	PM
SAINT VINCENT AND THE GRENADINES	VC
SAMOA	WS
SAN MARINO	SM
SAO TOME AND PRINCIPE	ST
SAUDI ARABIA	SA
SENEGAL	SN
SERBIA	RS
SEYCHELLES	SC
SIERRA LEONE	SL
SINGAPORE	SG
SLOVAKIA	SK
SLOVENIA	SI
SOLOMON ISLANDS	SB
SOMALIA	SO
SOUTH AFRICA	ZA
SOUTH GEORGIA AND THE SOUTH SANDWICH ISLANDS	GS
SPAIN	ES
SRI LANKA	LK
SUDAN	SD
SURINAME	SR
SVALBARD AND JAN MAYEN	SJ
SWAZILAND	SZ
SWEDEN	SE
SWITZERLAND	CH
SYRIAN ARAB REPUBLIC	SY
TAIWAN	TW
TAJIKISTAN	TJ
TANZANIA, UNITED REPUBLIC OF	TZ
THAILAND	TH
TIMOR-LESTE	TL
TOGO	TG
TOKELAU	TK

Country	Country Code
TONGA	TO
TRINIDAD AND TOBAGO	TT
TUNISIA	TN
TURKEY	TR
TURKMENISTAN	TM
TURKS AND CAICOS ISLANDS	TC
TUVALU	TV
UGANDA	UG
UKRAINE	UA
UNITED ARAB EMIRATES	AE
UNITED KINGDOM	GB
UNITED STATES MINOR OUTLYING ISLANDS	UM
URUGUAY	UY
UZBEKISTAN	UZ
VANUATU	VU
VATICAN CITY STATE	VA
VENEZUELA	VE
VIET NAM	VN
VIRGIN ISLANDS, BRITISH	VG
VIRGIN ISLANDS, U.S.	VI
WALLIS AND FUTUNA	WF
WESTERN SAHARA	EH
YEMEN	YE
ZAIRE	CD
ZAMBIA	ZM
ZIMBABWE	ZW
VANUATU	VU
VATICAN CITY STATE	VA
VENEZUELA	VE
VIET NAM	VN
VIRGIN ISLANDS, BRITISH	VG
VIRGIN ISLANDS, U.S.	VI
WALLIS AND FUTUNA	WF
WESTERN SAHARA	EH
YEMEN	YE
ZAIRE	CD
ZAMBIA	ZM
ZIMBABWE	ZW

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