

Making the Most of



Beyond the Basics



THE UNIVERSITY OF
CHICAGO MEDICINE &
BIOLOGICAL SCIENCES



CENTER FOR
RESEARCH
INFORMATICS

Speaker: Julissa Acevedo, REDCap Administrator

SEMINAR SERIES

- Introduction to REDCap (fall)
- **Beyond the REDCap Basics (winter)**
- All About REDCap Surveys (spring)

<http://cri.uchicago.edu/seminar-series/>

SEMINAR TOPICS

- History and Background
- Longitudinal Data Collection
- Edit Data Dictionary via Excel
- Data Import Tool
- Data Exports, Reports, and Stats
- User Rights, Roles, Data Access Groups
- Smart Devices
- REDCap Messenger ***new topic!**



History & Background

┆ CRI – WHAT WE DO



ACQUIRE DATA

Explore clinical data available for research and make a data request.

Clinical Research Data Warehouse
Cohort Discovery



ANALYZE DATA

We offer high-performance computing and advanced bioinformatics analysis for the most complex datasets.

Bioinformatics Core
High Performance Computing
Computing Resources



STORE DATA

Our storage is secure, standards-compliant, and backed up daily.

CRI Data Storage



MANAGE DATA

Manage studies, surveys, and databases for research.

REDCap
Clinical Trials Informatics



FIND A CUSTOM SOLUTION

Learn more about the CRI's tailor-made research solutions.

Custom Applications

WEBSITE:
cri.uchicago.edu

REDCAP – HISTORY

THEN

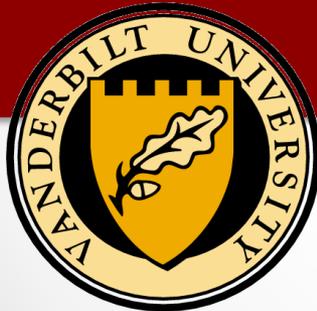
2004: Developed at Vanderbilt

2006: Global consortium

2010: University of Chicago

2011: Center for Research Informatics

2012: REDCap at UChicago



NOW

Worldwide:

2700 institutions

117 countries

479,000 projects

635,000 users

UChicago:

3000 projects

3400 users



▶ WHAT IS REDCAP?

Web-based software used to create and manage research databases and participant surveys.

Developed as a tool to help researchers collect and manage data effectively and responsibly.

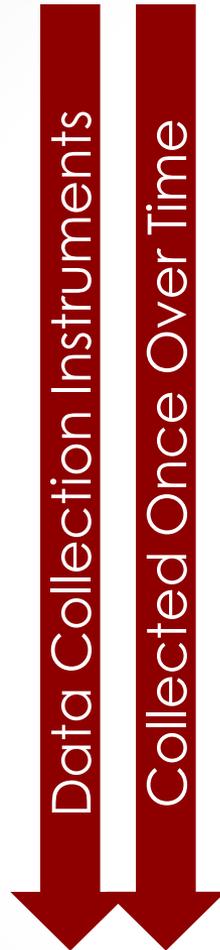
▶ WHAT IT REALLY IS!





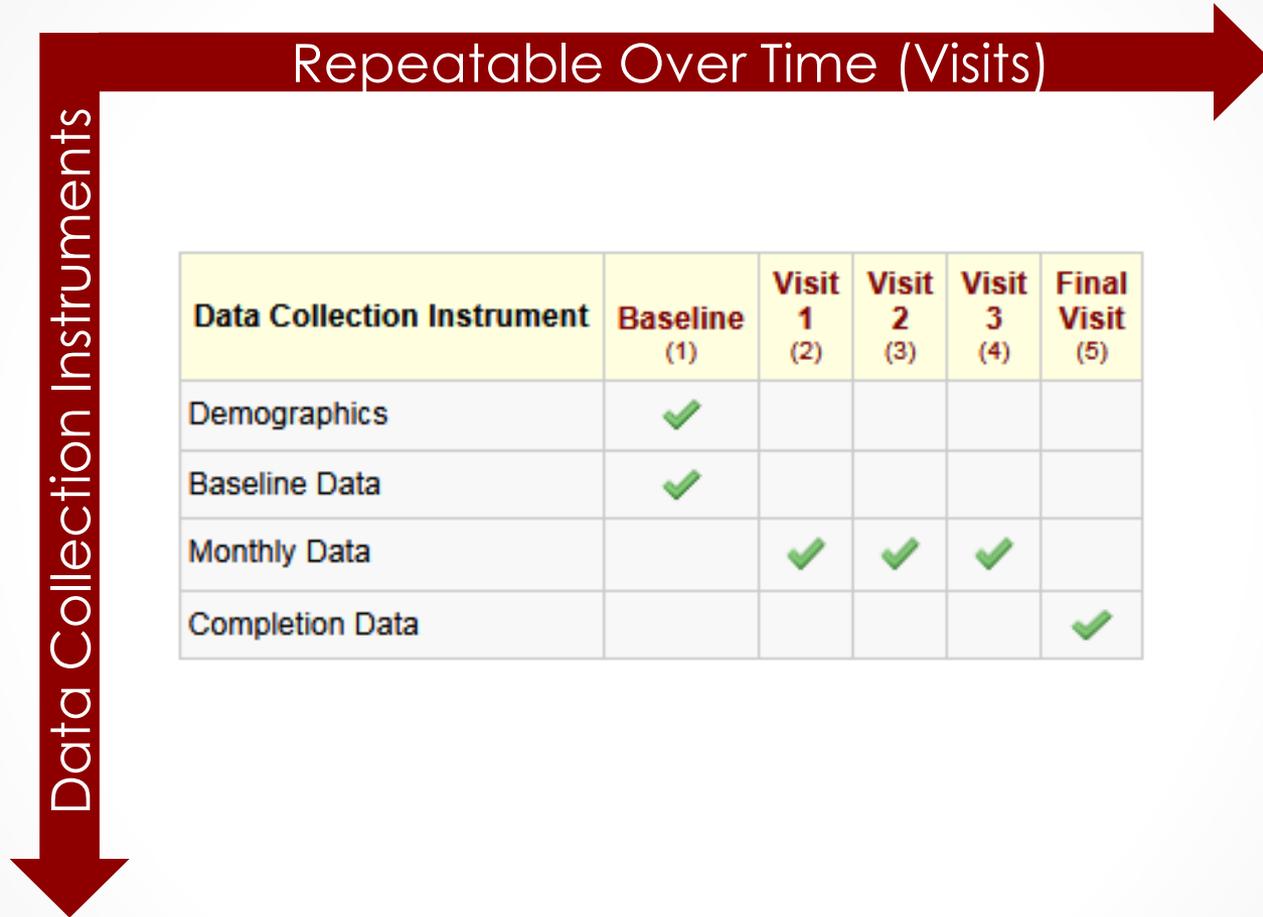
Longitudinal Data Collection

▶ What is classic data collection?



Data Collection Instrument	Event 1 (1)
Demographics	✓
Baseline Data	✓
Month 1 Data	✓
Month 2 Data	✓
Month 3 Data	✓
Completion Data	✓

▶ What is longitudinal data collection?



Classic vs longitudinal data collection

CLASSIC

- Only uses instruments.
- Doesn't use events.
- Create an instrument for each time point.

Data Collection Instrument
Demographics
Baseline Data
Month 1 Data
Month 2 Data
Month 3 Data
Completion Data

LONGITUDINAL

- Uses instruments.
- Uses events.
- Repeat instruments using events.

Data Collection Instrument	Baseline (1)	Visit 1 (2)	Visit 2 (3)	Visit 3 (4)	Final Visit (5)
Demographics	✓				
Baseline Data	✓				
Monthly Data		✓	✓	✓	
Completion Data					✓

How to enable longitudinal data collection?

Project Home | Project Setup | Other Functionality | Project Revision History | Edit project settings

Project status: Development Completed steps 7 of 8

Complete!
Not complete?

Main project settings

Enable Use surveys in this project? [?](#) [VIDEO: How to create and manage a survey](#)

Disable Use longitudinal data collection with defined events? [?](#) ← **1 enable setting**

Modify project title, purpose, etc.

Complete!
Not complete?

Design your data collection instruments

Add or edit fields on your data collection instruments. This may be done by either using the Online Design method (online method) or by using the Offline Design method (offline method). Quick links: [Design your instruments](#) | [View the current Data Dictionary](#)

Go to [Design your instruments](#) or [View the current Data Dictionary](#)

You may use pre-built data collection instruments in the [REDCap Shared Library](#)

Have you checked for identifiers? [Check For Identifiers](#) (Are all identifier fields have been tagged?)

2 define events | **3 assign forms**

Complete!
Not complete?

Define your events and designate instruments for them

Create events using data collection instruments and/or set up scheduling.

Go to [Define My Events](#) or [Designate Instruments for My Events](#)

Display and Reporting Differences

Classic Project

One row per record:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q
1	study_id	(screening form fields)----->			(month1 form fields)----->			(month2 form fields)----->			(month3 form fields)----->			(study completion form fields)----->			
2	100	data	data	data	data	data	data	data	data	data	data	data	data	data	data	data	data
3	200	data	data	data	data	data	data	data	data	data	data	data	data	data	data	data	data
4	300	data	data	data	data	data	data	data	data	data	data	data	data	data	data	data	data

Longitudinal Project

Multiple rows per record:

	A	B	C	D	E	F	G	H	I	J	K	L
1	study_id	redcap_event_name	(screening form fields)----->			(monthly form fields)----->			(study completion form fields)----->			
2	100	screening	data	data	data							
3	100	month1				data	data	data				
4	100	month2				data	data	data				
5	100	month3				data	data	data				
6	100	completion							data	data	data	data
7	200	screening	data	data	data							
8	200	month1				data	data	data				
9	200	month2				data	data	data				
10	300	screening	data	data	data							
11	300	month1				data	data	data				

Repeating Forms and Events

[Project Home](#) [Project Setup](#) [Other Functionality](#) [Project Revision History](#) [Edit project settings](#)

Project status: Development Completed steps **5** of **7**

Main project settings

Not started

Use surveys in this project? [?](#) [VIDEO: How to create and manage a survey](#)

Use longitudinal data collection with defined events? [?](#)

Design your data collection instruments

Complete!

[Not complete?](#)

Add or edit fields on your data collection instruments. This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method). Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

Go to or

You may also browse for pre-built data collection instruments in the

Have you checked the [Check For Identifiers](#) page to ensure all identifier fields have been tagged?

Enable optional modules and customizations

Complete!

[Not complete?](#)

Repeating instruments [?](#)

Auto-numbering for records [?](#)

Scheduling module (longitudinal only) [?](#)

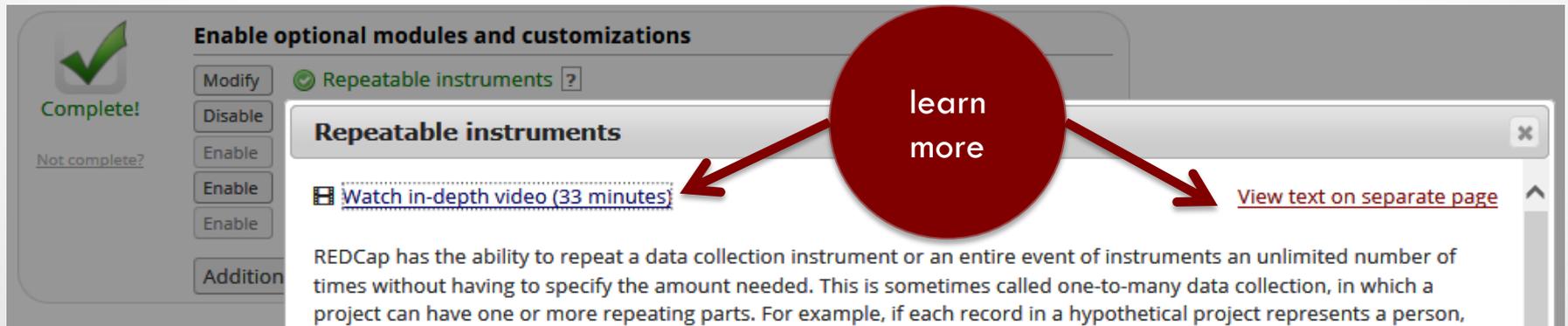
Randomization module [?](#)

Designate an email field to use for invitations to survey participants [?](#)

▶ Repeating Forms and Events

This feature can be used for:

- **Classic projects** – to repeat forms
- **Longitudinal projects** – to repeat forms and events
- **Survey projects** – to allow participants to repeat surveys



Enable optional modules and customizations

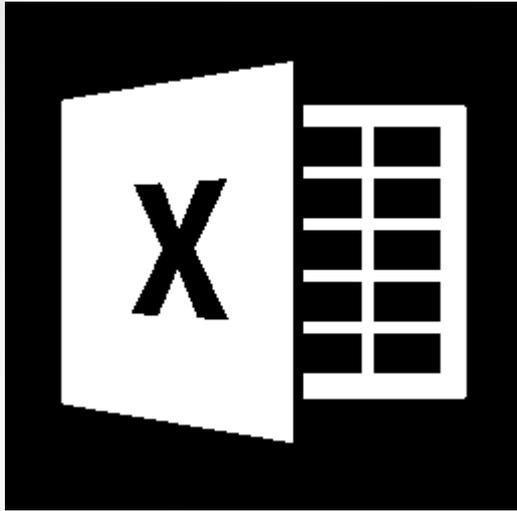
Complete!
 Not complete?

Modify Repeatable instruments ?

Repeatable instruments

[Watch in-depth video \(33 minutes\)](#) [View text on separate page](#)

REDCap has the ability to repeat a data collection instrument or an entire event of instruments an unlimited number of times without having to specify the amount needed. This is sometimes called one-to-many data collection, in which a project can have one or more repeating parts. For example, if each record in a hypothetical project represents a person,



Edit Data Dictionary via Excel

▶ Editing your Instruments: Two Methods



Complete!

[Not complete?](#)

Design your data collection instruments

Add or edit fields on your data collection instruments. This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method). Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

Go to  Online Designer or  Data Dictionary

You may also browse for pre-built data collection instruments in the [REDCap Shared Library](#)

Have you checked the [Check For Identifiers](#) page to ensure all identifier fields have been tagged?



Editing your Instruments: Data Dictionary

[Project Home](#) [Project Setup](#) [Online Designer](#) [Data Dictionary](#)

 [VIDEO: How to use this page](#)

This module will allow you to create new data collection instruments/surveys or edit existing ones. Changes may be made by either using the **Online Designer** or **Upload Data Dictionary** (see tabs above), in which you may use either method or both. The Online Designer may help you get some initial fields/forms built quickly or to make quick edits, but using the Data Dictionary file may be more helpful if you will be adding a large number of fields for this project.

This module may be used for making changes to the project, such as adding new fields or modifying existing fields, by using an offline method called the Data Dictionary. The Data Dictionary is a specifically formatted CSV (comma delimited) file within which you may construct your project fields and afterward upload the file here to commit the changes to your project.

Click the 'Browse' or 'Choose File' button below to select the file on your computer, and upload it by clicking the 'Upload File' button. Once your file has been uploaded, changes will NOT immediately be made but will be displayed and checked for errors to ensure that all the formatting in your Data Dictionary is correct before official changes are made to the project. **Snapshot note:** A snapshot of your project's current Data Dictionary will be created automatically during the Data Dictionary upload process before committing the new Data Dictionary. The snapshot can later be accessed and downloaded from the Project Revision History page.

Need some help?
If you wish to view an example of how your Data Dictionary may be formatted, you may download the [Data Dictionary demonstration file](#), or you may view the [Data Dictionary Tutorial Video \(10 min\)](#). For help setting up your Data Dictionary, you may also see the instructions listed on the [Help & FAQ](#).

Steps for making project changes:

- 1.) [Download the current Data Dictionary](#) 
- 2.) Edit the Data Dictionary (see the [Help & FAQ](#) for help)
- 3.) Upload the Data Dictionary using the form below
- 4.) The changes will be made to the project after the Data Dictionary has been checked for errors

Upload your Data Dictionary file (CSV file format only)

Format for min/max validation values for date and datetime fields: 

how-to
video

▸ Steps for Data Import Tool



‡ Caution!

1 Uploading a new data dictionary **replaces** the old one. It does not append to the current one. Always upload the old dictionary **with** your changes – *not just your changes*.

2 Data dictionary version history is available for projects in *Production Mode*, but it is **not** available for projects in *Development Mode*. However, manual “snapshots” are available in *Development Mode*.



‡ Good Uses for Updating via Data Dictionary

- 1 Make several copies of instruments or fields in batch.
- 2 Turn radio buttons into a matrix field by adding a Matrix Group Name.
- 3 Make batch changes to all fields for:
 - * Branching Logic
 - * Text Validation
 - * Identifiers
 - * Required Fields
 - * Custom Alignment
 - * Field Notes



▶ Editing your Instruments: Online Designer

Project Home | Project Setup | **Online Designer** | Data Dictionary

Create snapshot of instruments | VIDEO: How to use this page
Last snapshot: never ?

The Online Designer will allow you to make project modifications to fields and data collection instruments very easily using only your web browser. NOTE: While in development status, all field changes will take effect immediately in real time.

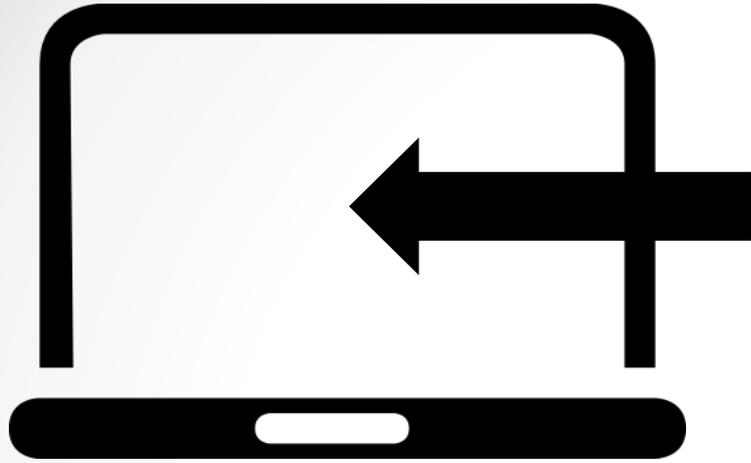
Data Collection Instruments

Add new instrument:

- Create a new instrument from scratch
- Import a new instrument from the official [REDCap Shared Library](#)
- Upload instrument ZIP file from another project/user or [external libraries](#)

Instrument name	Fields	View PDF	Instrument actions
Screening	19		Choose action ▾
Lab Values	18		Choose action ▾
Study Completion	5		<ul style="list-style-type: none">RenameCopyDeleteDownload instrument ZIP

copy instrument →



Data Import Tool

▸ Data Collection Types

The screenshot displays the 'Data Collection' section of a software interface. At the top, there is a header 'Data Collection' with a link to 'Edit instruments'. Below this, there are two main sections: 'Record Status Dashboard' and 'Applications'. The 'Record Status Dashboard' includes 'Record Status Dashboard' (with a sub-description: '- View data collection status of all records') and 'Add / Edit Records' (with a sub-description: '- Create new records or edit/view existing ones'). The 'Applications' section lists various tools: Calendar, Data Exports, Reports, and Stats, Data Import Tool, Data Comparison Tool, Logging, Field Comment Log, File Repository, User Rights and DAGs, Record Locking Customization, E-signature and Locking Mgmt, Data Quality, API and API Playground, REDCap Mobile App, UChicago Advanced Features, and UChicago Support Website. Two red arrows point from external text boxes to 'Add / Edit Records' and 'Data Import Tool'.

online
data
entry

Excel
data
import

▶ Data Import Tool

Data Import Tool

This module may be used for importing data into this project from a CSV (comma delimited) file or alternatively from an XML file in CDISC ODM format. Below are the steps you will need to follow in order to import your data successfully into this project.

NOTICE:

This project is currently in Development status. **Real data should NOT be entered** until the project has been moved to Production status.

 CSV import

 CDISC ODM (XML) import

Instructions:

1.) Click the link below to download your data import template as a CSV (comma delimited) file. Save it locally to your computer and then open it to begin filling it with the data you wish to import.

 [Download your Data Import Template](#) (with records in rows)

OR

 [Download your Data Import Template](#) (with records in columns)

2.) In each column of the Data Import Template file that you downloaded, place the data for each record that you wish to import. Once all your data has been added, save the file.

- Be sure not to change the Variables/Field Names in the file or an error may occur.
- Also, for all of the 'dropdown' or 'radio' fields in the project, you must make sure that the numerical value (rather than the text value) is entered in those cells, or else it cannot be processed.
- Any empty rows or columns in the file can be safely deleted before importing the file. Doing this reduces the upload processing time, especially for large projects.

3.) Click the 'Browse' or 'Choose File' button below to select the file on your computer, and upload it by clicking the 'Upload File' button.

4.) Once your file has been uploaded, the data will NOT be immediately imported but will be displayed and checked for errors to ensure that all the data is in correct format before it is finally imported into the project.

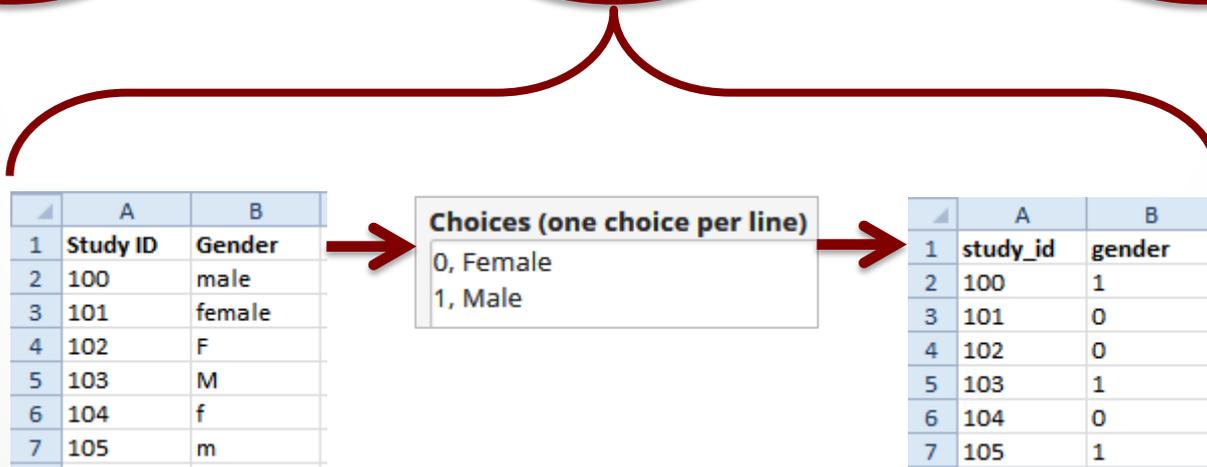
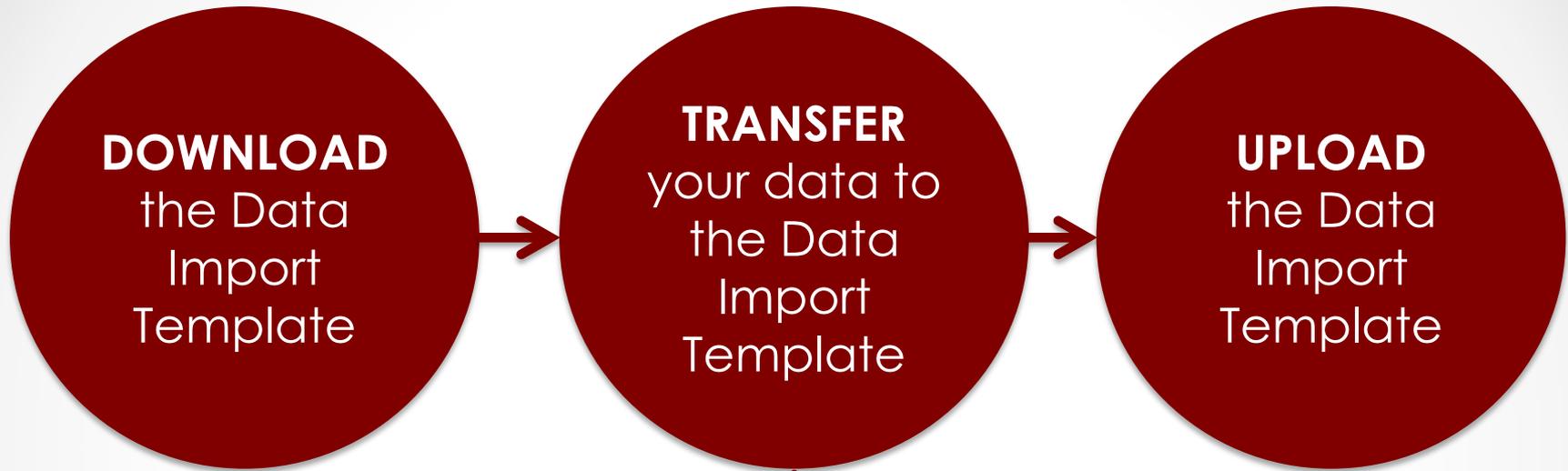
Record format: The file to be uploaded has its records stored as separate 

Format for date and datetime values: 

Allow blank values to overwrite existing saved values? 

 Upload your CSV file:

Steps for Data Import Tool



⌋ Caution!

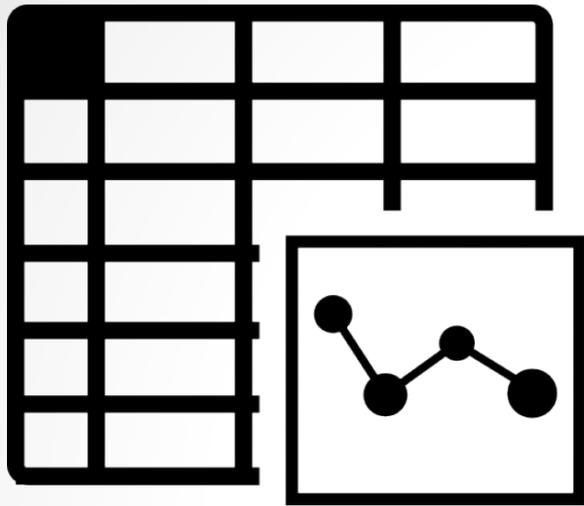


1 Don't change the variable names on the template. They must match the project's variable names.

2 For all dropdown, radio button, checkbox, or matrix fields, upload the numerical value (rather than the text value).

3 Empty rows or columns can be deleted before importing the file to reduce the upload processing time.

4 It's recommended you import a few variables at a time. The entire template doesn't need to be imported all at once.



Data Exports, Reports, and Stats

▶ Data Exports, Reports, and Stats Page

Data Exports, Reports, and Stats

 [VIDEO: How to use Data Exports, Reports, and Stats](#)

how-to
video

 Create New Report

 My Reports & Exports

 Other Export Options

This module allows you to easily view reports of your data, inspect plots and descriptive statistics of your data, as well as export your data to Microsoft Excel, SAS, Stata, R, or SPSS for analysis (if you have such privileges). If you wish to export your *entire* data set or view it as a report, then Report A is the best and quickest way. However, if you want to view or export data from only specific instruments (or events) on the fly, then Report B is the best choice. You may also create your own custom reports below (if you have such privileges) in which you can filter the report to specific fields, records, or events using a vast array of filtering tools to make sure you get the exact data you want. Once you have created a report, you may view it as a webpage, export it out of REDCap in a specified format (Excel, SAS, Stata, SPSS, R), or view the plots and descriptive statistics for that report.

My Reports & Exports

	Report name	View/Export Options	Management Options	Report ID  (auto-generated)
A	All data (all records and fields)	 View Report  Export Data  Stats & Charts		
B	Selected instruments (all records)	 Make custom selections		
*	+ Create New Report			

Other Export Options

[+ Create New Report](#)

[My Reports & Exports](#)

[Other Export Options](#)

Below are some additional export options that are available for your project. Instructions for each type of export are provided. You may click the corresponding icon on the right to download the file for each.

1

Export entire project as REDCap XML file (containing metadata & data)

The entire project (all records, events, arms, instruments, fields, and project attributes) can be downloaded as a single XML file, which is in CDISC ODM format (ODM version 1.3.1). This XML file can be used to create a clone of the project (including its data, optionally) on this REDCap server or on another REDCap server (it can be uploaded on the Create New Project page). Because it is in CDISC ODM format, it can also be used to import the project into another ODM-compatible system.



2

ZIP file of uploaded files (all records)

Uploaded files for all records in this project may be downloaded in a single ZIP file. This file contains any files uploaded for 'File Upload' fields/questions on a survey or data entry form. The ZIP file will contain a folder of all the files organized by record name and variable/field name and also contains an index.html file that serves as a table of contents for all the files. After downloading the ZIP file, extract all the files/folders to a directory on your local computer, after which you may double-click the index.html file inside to view a listing of the files using your web browser, or you may view the files directly by looking in the 'documents' folder. Click the icon to the right to begin downloading the ZIP file.



Note: If your project has a large amount of 'File Upload' fields/questions or records/responses, the resulting ZIP file may be very large in file size. Please be patient if the file takes time to download.

3

PDF of data collection instruments containing saved data (all records)

The data for all records in this project may be downloaded in a single PDF file. This file contains the actual page format as you would see it on the data entry page or survey and includes all data for all records for all data collection instruments. Click the icon to the right to begin downloading the file.



Note: If your project has a large amount of fields/questions or records/responses, the resulting PDF file may be very large both in file size and in page length. Please be patient if the file takes time to download.



User Rights

▸ User Rights

Project Home

Project Setup

User Rights

Data Access Groups

This page may be used for granting users access to this project and for managing the user privileges of those users. You may also create roles to which you may assign users (optional). User roles are useful when you will have several users with the same privileges because they allow you to easily add many users to a role in a much faster manner than setting their user privileges individually. Roles are also a nice way to categorize users within a project. In the box below you may add/assign users or create new roles, and the table at the bottom allows you to make modifications to any existing user or role in the project, as well as view a glimpse of their user privileges.

Add new users: Give them custom user rights or assign them to a role.



— OR —



Create new roles: Add new user roles to which users may be assigned.



(e.g., Project Manager, Data Entry Person)

new
users

Role name

(click role name to edit role)

Username or users assigned to a role

(click username to edit or assign to role)

Expiration

(click expiration to edit)

Data Access Group

(click DAG to assign user)

Project Design and Setup

User Rights

Data Access Groups

Data

—

jacevedo (Julissa Acevedo)

current
users

—



Ful

▶ User Roles

🏠 Project Home

☰ Project Setup

👤 User Rights

👥 Data Access Groups

This page may be used for granting users access to this project and for managing the user privileges of those users. You may also create roles to which you may assign users (optional). User roles are useful when you will have several users with the same privileges because they allow you to easily add many users to a role in a much faster manner than setting their user privileges individually. Roles are also a nice way to categorize users within a project. In the box below you may add/assign users or create new roles, and the table at the bottom allows you to make modifications to any existing user or role in the project, as well as view a glimpse of their user privileges.

Add new users: Give them custom user rights or assign them to a role.



— OR —



Create new roles: Add new user roles to which users may be assigned.



(e.g., Project Manager, Data Entry Person)

new
roles

Role name (click role name to edit role)	Username or users assigned to a role (click username to edit or assign to role)	Expiration (click expiration to edit)	Data Access Group (click DAG to assign user)	Project Design and Setup	User Rights	Data Access Groups
Project Manager	jacevedo (Julissa Acevedo)	never	—	✓	✓	✓
Data Entry	t.cri.redcap1 (Julissa Acevedo)	never	—	✗	✗	✗
	t.cri.redcap2 (Julissa Acevedo)	never	—	✗	✗	✗

▶ Data Access Groups

Project Home

Project Setup

User Rights

Data Access Groups

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Add new users: Give them custom user rights or assign them to a role.



— OR —



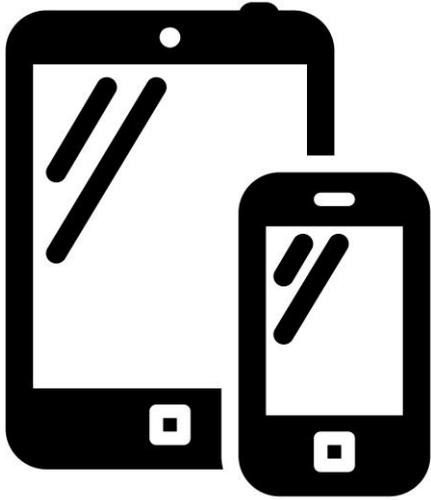
Create new roles: Add new user roles to which users may be assigned.



(e.g., Project Manager, Data Entry Person)

data
access
groups

Role name (click role name to edit role)	Username or users assigned to a role (click username to edit or assign to role)	Expiration (click expiration to edit)	Data Access Group (click DAG to assign user)	Project Design and Setup	User Rights	Data Access Groups
Project Manager	jacevedo (Julissa Acevedo)	never	—	✓	✓	✓
Data Entry	t.cri.redcap1 (Julissa Acevedo)	never	Lurie	✗	✗	✗
	t.cri.redcap2 (Julissa Acevedo)	never	UIC	✗	✗	✗



Smart Devices

Smart Devices



REDCap is compatible with:

- iPhones and iPads
- Android tablets and smart phones
- Simply go to <https://redcap.uchicago.edu/>

‡ Mobile App

But for offline data collection (no internet)...



REDCap



App Store

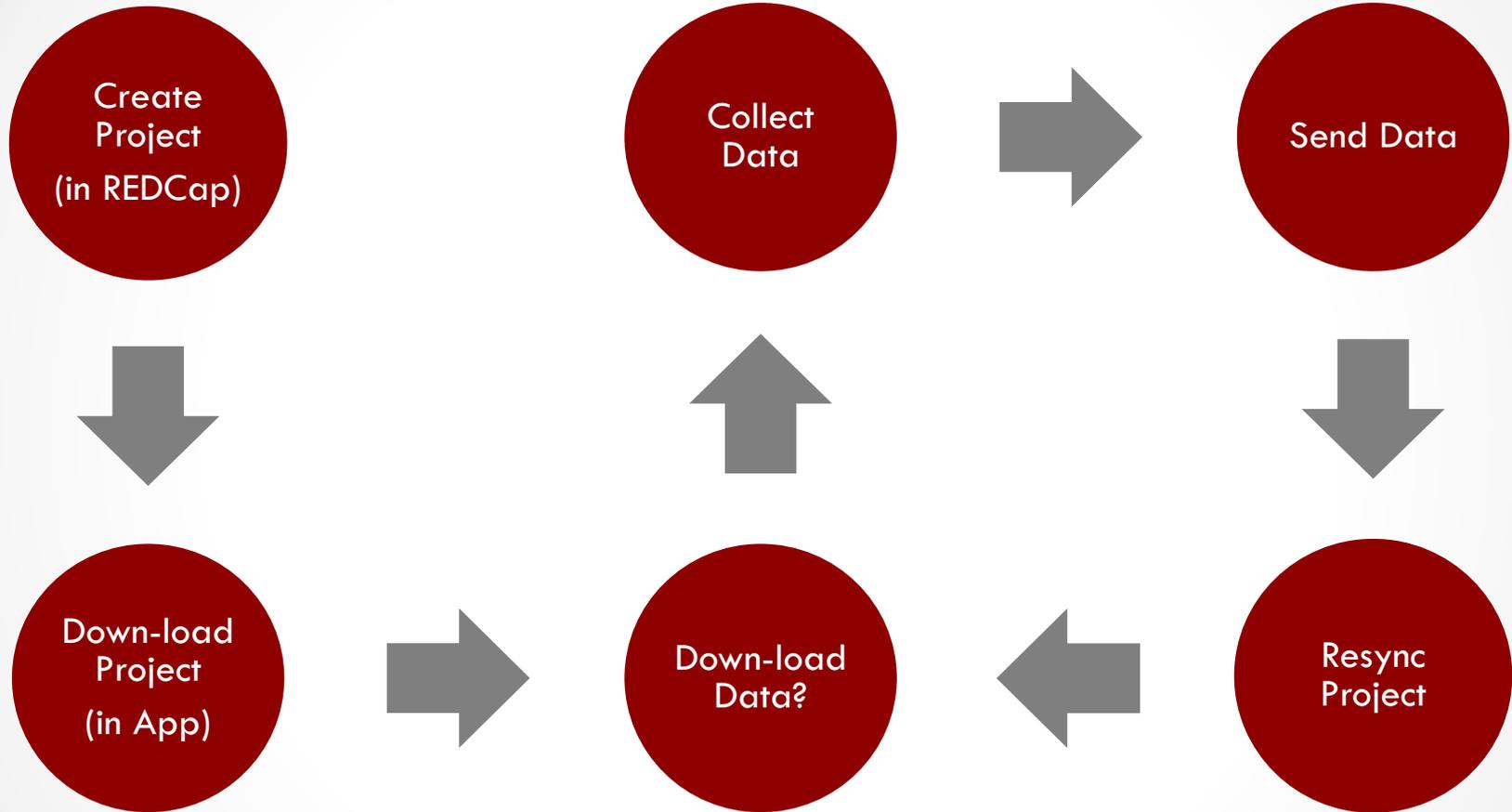


Google play

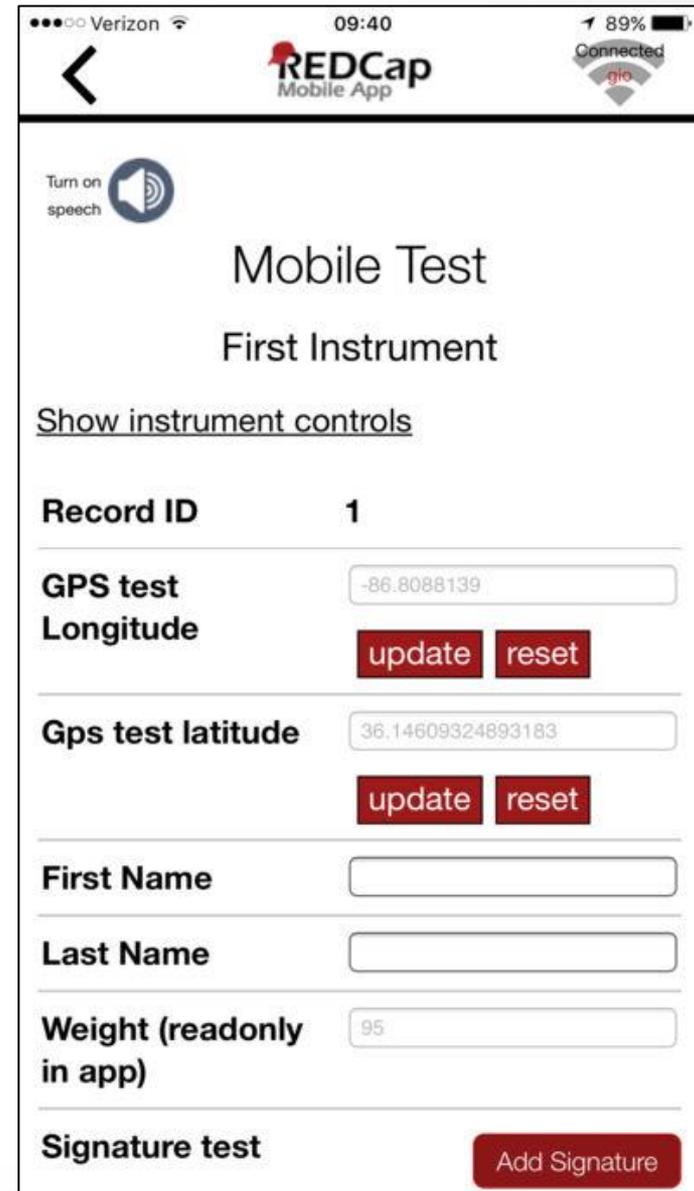
**not available for:*



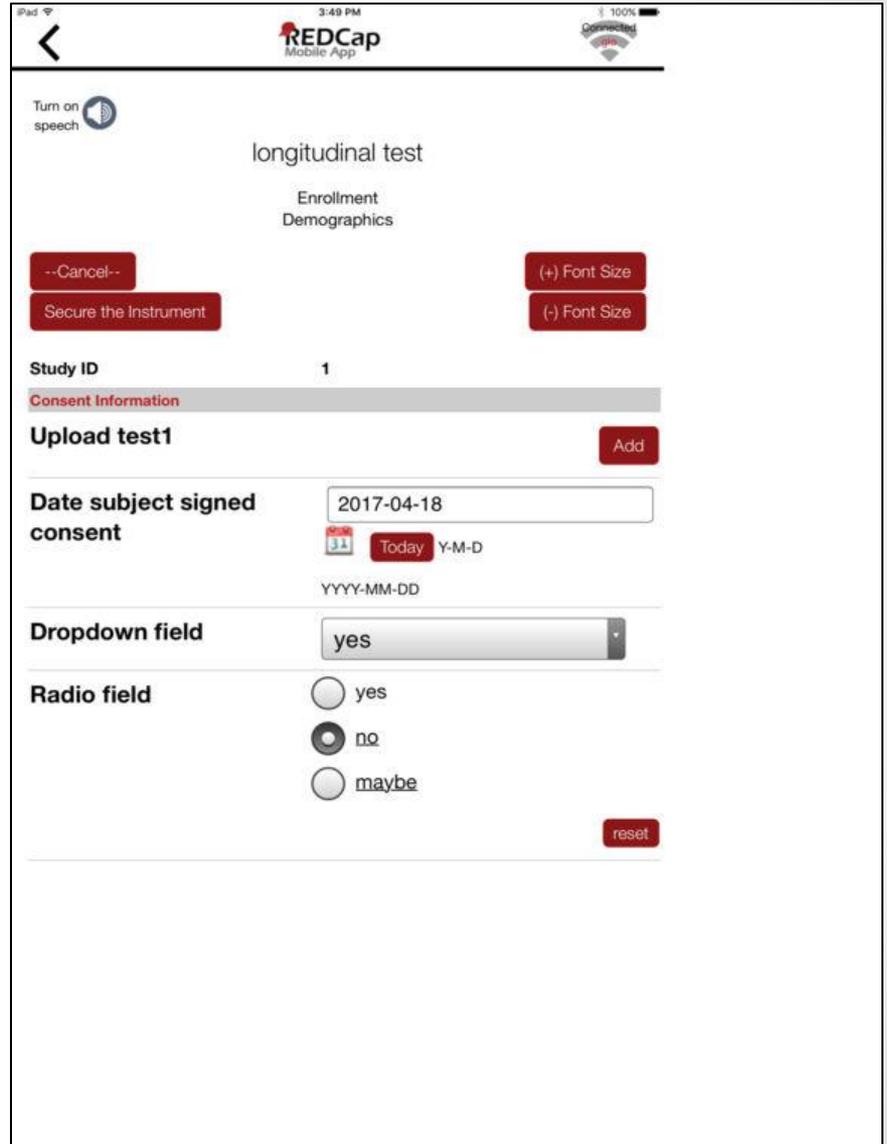
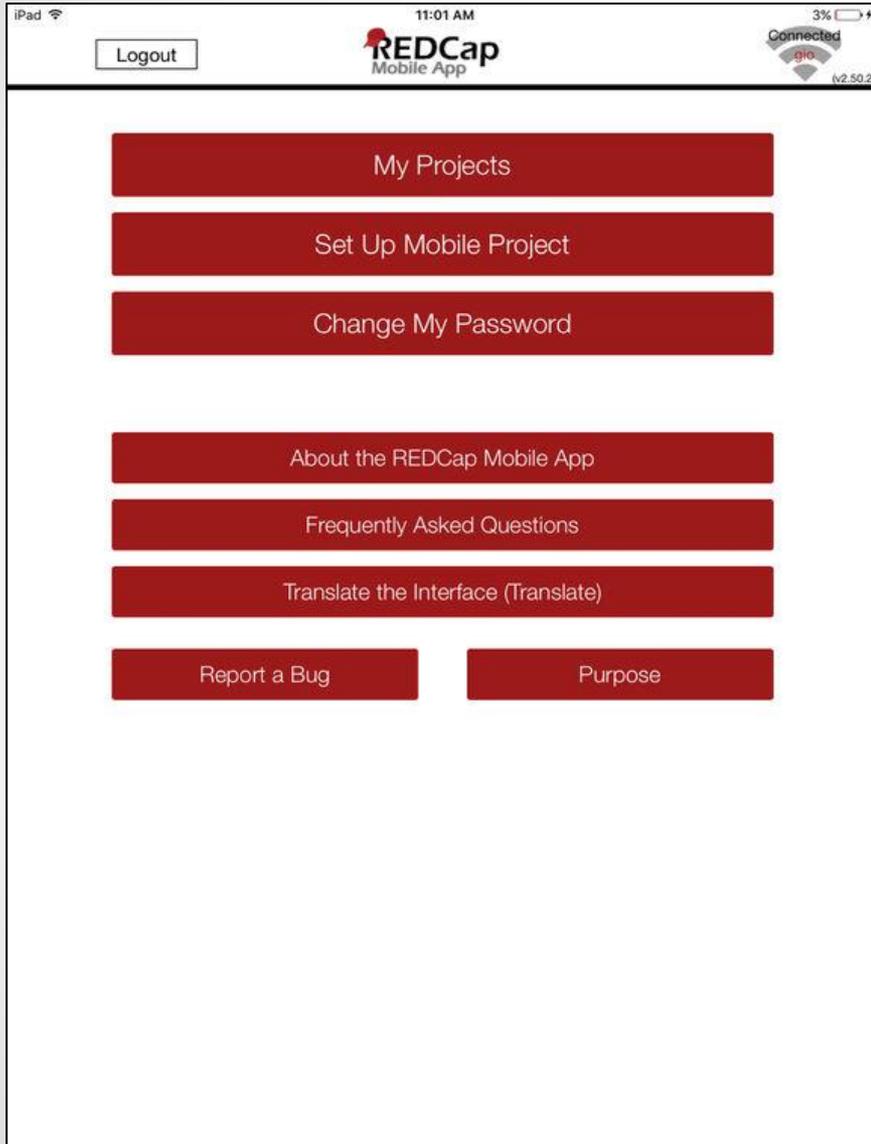
Mobile App - Process



Mobile App - iPhone



Mobile App - iPad





REDCap Messenger

REDCap Messenger – Home Page

REDCap™ Home My Projects + New Project Help & FAQ Training Videos Send-It Messenger

Messenger (X)

Notifications (✓)

Conversations (Calendar, Search, Info)

User Access?

Create new conversation

Welcome to REDCap!

REDCap is a mature, secure web application for building and managing surveys and databases. Using REDCap's stream-lined process for developing projects, you may create and design projects using either method from your web browser using the Online Designer; or alternatively, you may construct a 'data dictionary' template file in Microsoft Excel which can be later uploaded into REDCap. Both surveys and databases (or a combination of the two) can be built using these methods.

REDCap provides automated export procedures for seamless data downloads to Excel and common statistical packages (SPSS, SAS, Stata, R), as well as a built-in project calendar, a scheduling module, ad hoc reporting tools, and advanced features, such as branching logic, file uploading, and calculated fields.

Learn more about REDCap by watching a [brief summary video \(4 min\)](#). If you would like to view other quick video tutorials of REDCap in action and an overview of its features, please see the [Training Resources](#) page.

Please note that any publication that results from a project utilizing REDCap should cite grant support (NIH CTSA UL1 TR000430).

NOTICE: If you are collecting data for the purposes of human subjects research, review and approval of the project is required by your Institutional Review Board.

If you require assistance or have any questions about REDCap, please contact [REDCap Support](#).

access here

REDCap Messenger – Create Conversation

Create new conversation

✕

Users List

Users across all my projects: (select all)

bfurner (Brian Furner) ✓ **jacevedo** (Julissa Acevedo) ✓

schoi (Seong Choi) t.cri.redcap1 (Julissa Acevedo)

t.cri.redcap2 (Julissa Acevedo)

t.cri.redcap3 (Julissa Acevedo) tcyrus (Tiffany Cyrus)

Selected users

jacevedo ✕ bfurner ✕

Conversation Title

 (required)

status

Initial Message

 (optional)

what's the status of patient 105?

Link Conversation to Project

 (optional) ?

Sickle Cell Patient Registry (Backup Copy 11/10/17 5PM) (f ▼)

Search Users

Search for user by username, name, or email

Create **Close**



Wrap Up

▶ Help Resources

Inside of REDCap:

page: A screenshot of the REDCap navigation menu. The menu items are: Home (with a house icon), My Projects (with a folder icon), Create New Project (with a green plus icon), Training Resource (with a gear icon), Help & FAQ (with a blue question mark icon and circled in red), and Send-It (with a paper plane icon).

email: A screenshot of a blue button with a white envelope icon and the text "Contact REDCap administrator".

Outside of REDCap:

page: <https://cri.uchicago.edu/redcap>

email: redcap@rt.cri.chicago.edu

▶ Additional Training Manuals

TRAINING MANUALS

The following manuals are available for your reference. Please contact **REDCap Support** with any questions.

Quick Start Guide

Beginner's Guide

Advantages and Limitations

Best Practices

Avoid Common Pitfalls

User Rights Best Practices

Project Templates

Project Template Data Dictionaries

Data Dictionary

Reports and Exports

Data Resolution Workflow

Randomization Module

Mobile App Guide

Multiple Surveys

Automated Survey Invitations

Survey Queues

Personalized Survey Greetings

Matrix Fields

Piping Feature

Deleting Records

Excel Supplement

<http://cri.uchicago.edu/redcap-training/>

PDFs

▶ NEXT SEMINAR

Making the Most of REDCap: All About Surveys

- Thursday, June 7th, 2018
- KCDB 1103
- Time TBD
- <https://cri.uchicago.edu/seminar-series/>