



RC101

Introduction to REDCap

Agenda

- What and Why REDCap?
- Quick tour around REDCap
- Creating a data instrument
- REDCap surveys
- Exporting data
- Security
- Other capabilities
- Training & Docs

What and Why REDCap?

What is REDCap?

- REDCap == **Research Electronic Data Capture**
- REDCap is an Electronic Data Capture (EDC) system
- EDC systems are used to capture data onto an electronic system (i.e., a database)
 - EDCs are generally used by study staff to enter data from paper forms or while interviewing a participant or perhaps abstracting their chart
 - Survey systems are similar to EDCs but are primarily intended to directly survey a participant
 - REDCap is an EDC that also supports surveys

What can REDCap do?

- Send surveys to participants
- Longitudinal data collection
- Automate and send emails to participants and staff
- Call tracking
- Import and export data
- Multi-Language support
- e-Consent
- Randomization
- Robust logging
- Detailed user rights
- Data Access Groups for multi-site studies
- API access
- Programming extensions
- And much more!

Where did REDCap come from?

- REDCap was created and is actively maintained by Vanderbilt University for the use of universities and non-profit institutions
- Fred Hutch is a member of the REDCap Consortium
- REDCap is for non-profit data collection only
 - It may not be used by for-profit entities or for for-profit work

And where is REDCap going?

- As of Apr 2025, REDCap is installed on 7,769 partner institutions in 160 countries and is serving 2.3 million projects
- REDCap has been cited in 45,300+ journal articles
- REDCap has a vibrant & active community and is constantly being upgraded and improved

Why REDCap?

- REDCap is great for research data collection
 - Case report forms
 - Data forms
 - Participant-entered surveys
- REDCap has a lot of flexibility, advanced capabilities, and is ***research-smart***
 - REDCap, unlike most survey tools, understands the idea of a subject (or participant) having multiple data instruments

 Instruments

Quick Tour around REDCap

My Projects Page

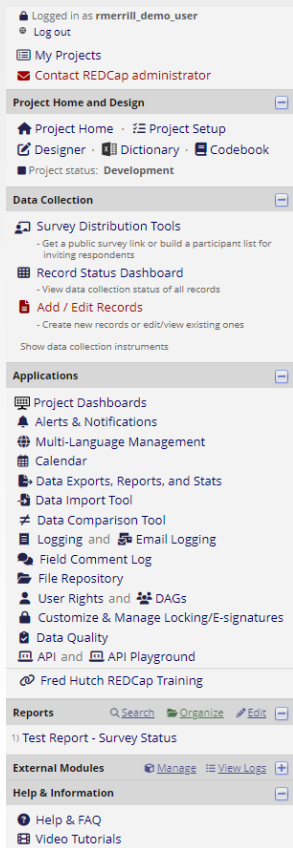
Fred Hutch REDCap News *(No need to login to access any of these links!)*

- We have created a Fred Hutch REDCap community in [Microsoft teams!](#) Please use this community for REDCap Q&A and as a way to learn and share with other REDCap users at Fred Hutch.
- CDS provides [extensive \(and free\) REDCap Training](#), both in-person and video-based training.
- **Intro to REDCap** 4/16/2024, **Creating Data Forms** 5/14/2024: [Register at Hutch Learning](#)
- Weekly office hours are held on [Microsoft Teams from 3:00-3:30 pm every Monday](#) (except holidays). All advice given during office hours is free and no appointment is needed.
- REDCap is now at version 14.2.1. View [REDCap versions and the features added to each release](#).
- If you want to create a new REDCap project, please complete this short [New Project Request survey](#).

Listed below are the REDCap projects to which you currently have access. Click the project title to open the project. [Read more](#) To review which users still have access to your projects, visit the [User Access Dashboard](#).

Project Title	PID	Records	Fields	Instruments	Type	Status
Ryan Survey Demo	1382	9	18	1 form 2 surveys	■	🔧

Project Navbar



Logged in as **rmerrill_demo_user**
Log out

My Projects
Contact REDCap administrator

Project Home and Design

- Project Home · Project Setup
- Designer · Dictionary · Codebook
- Project status: Development

Data Collection

- Survey Distribution Tools
- Get a public survey link or build a participant list for inviting respondents
- Record Status Dashboard
- View data collection status of all records
- Add / Edit Records
- Create new records or edit/view existing ones

Show data collection instruments

Applications

- Project Dashboards
- Alerts & Notifications
- Multi-Language Management
- Calendar
- Data Exports, Reports, and Stats
- Data Import Tool
- Data Comparison Tool
- Logging and Email Logging
- Field Comment Log
- File Repository
- User Rights and DAGs
- Customize & Manage Locking/E-signatures
- Data Quality
- API and API Playground
- Fred Hutch REDCap Training

Reports Search Organize Edit

1) Test Report - Survey Status

External Modules Manage View Logs

Help & Information

- Help & FAQ
- Video Tutorials

Access to most parts of REDCap including other pages (My Projects, Project Home, etc.), Data collection, Other stuff (Applications), Reports, Help

Project Home

Ryan Survey Demo

PID 1382

[Project Home](#)

[Project Setup](#)

[Other Functionality](#)

[Project Revision History](#)

The tables below provide general dashboard information, such as a list of all users with access to this project, general project statistics, and upcoming calendar events (if any).

Current Users (2)	
User	Expires
rmerrill (Ryan Merrill)	never
rmerrill_demo_user (Ryan Merrill)	never

Project Statistics	
Records in project	9
Most recent activity	04/15/2024 4:22pm
Space usage for docs	0.03 MB

Upcoming Calendar Events (next 7 days)		
Time	Date	Description
		No upcoming events


Brief project overview including users and general usage statistics

Project Setup

Paul Brand New Project



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


Project status:  Development Completed steps 0 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

Not started

Go to or Explore the


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


Learn how to use [Smart Variables](#) [Piping](#) [Action Tags](#)





Enable optional modules and customizations


Optional

 Repeatable instruments [?](#)

 Auto-numbering for records [?](#)

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

 Randomization module [?](#)

 Designate an email field for sending survey invitations [?](#)

Access to online designer, data dictionary, main project settings, optional modules and customizations, user rights, etc.

Record Home Page

Ryan Survey Demo




PID 1382

Record Home Page








The grid below displays the form-by-form progress of data entered for the currently selected record. You may click on the colored status icons to access that form/event.

Choose action for record

Subject Id 1 Ryan Merrill

Data Collection Instrument	Status
Survey Status	
Patient Declaration (survey)	
External Survey (survey)	

Choose action for record

-  Download PDF of record data for all instruments
-  Download PDF of record data for all instruments (compact)
-  Lock all instruments across all events
-  Unlock all instruments across all events
-  Assign to Data Access Group (or unassign/reassign)
-  Rename record
-  Delete record (all forms)

When you click on subject id, you will move to a focused view of a single record and access to "actions for record"

Record Status Dashboard

Record Status Dashboard (all records)

Displayed below is a table listing all existing records/responses and their status for every data collection instrument (and if longitudinal, for every event). You may click any of the colored buttons in the table to open a new tab/window in your browser to view that record on that particular data collection instrument. Please note that if your form-level user privileges are restricted for certain data collection instruments, you will only be able to view those instruments, and if you belong to a Data Access Group, you will only be able to view records that belong to your group.

Legend for status icons:

- Incomplete Incomplete (no data saved) ?
- Unverified Partial Survey Response
- Complete Completed Survey Response

Dashboard displayed: [Default dashboard] ▼

[Create custom dashboard](#)

Displaying record Page 1 of 1: "1" through "18" ▼ of **9** records

ALL (9) ▼ records per page

[+ Add new record](#)

Displaying: [Instrument status only](#) | [Lock status only](#) | [All status types](#)

Subject ID	Enrollment	Baseline Interview	Month 3 Interview	Month 6 Interview	Month 12 Interview	Psychosocial Survey	Exit
1	●	●	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	●	●
2	●	●	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
3	●	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
13	●	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	●
14	●	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Overview of all your records; access to custom dashboards.

Add/Edit Records

Ryan Survey Demo PID 1382

Add / Edit Records

You may view an existing record/response by selecting it from the drop-down lists below. To create a new record/response, click the button below.

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

Total records: 9

Choose an existing Subject Id

-- select record --

+ Add new record

Data Search

Choose a field to search

(excludes multiple choice fields)

All fields

Search query

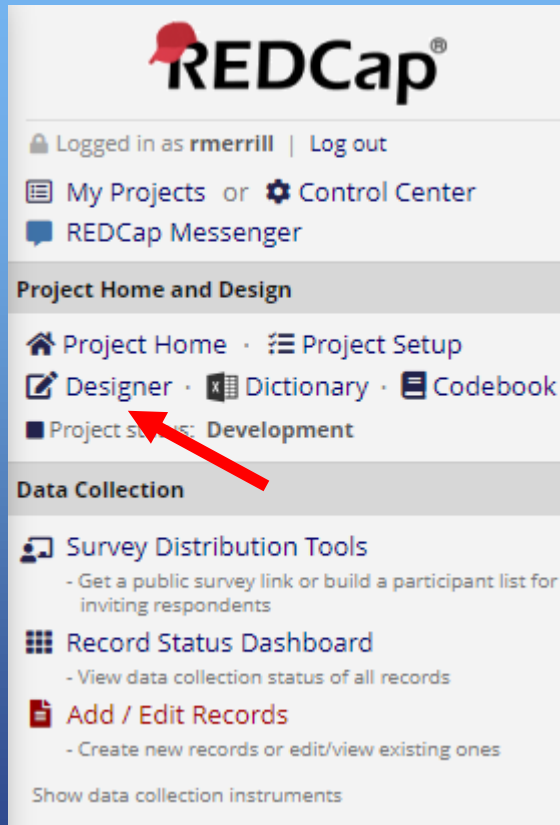
Begin typing to search the project data, then click an item in the list to navigate to that record.

Allows you to...

1. Select a record by subject id.
2. Add a new record.
3. Search for a record by any field in project.

Creating a Data Instrument

Creating a data form using the designer



REDCap[®]

Logged in as **rmerrill** | Log out

My Projects or Control Center

REDCap Messenger

Project Home and Design

Project Home · Project Setup

Designer · Dictionary · Codebook

Project status: Development

Data Collection

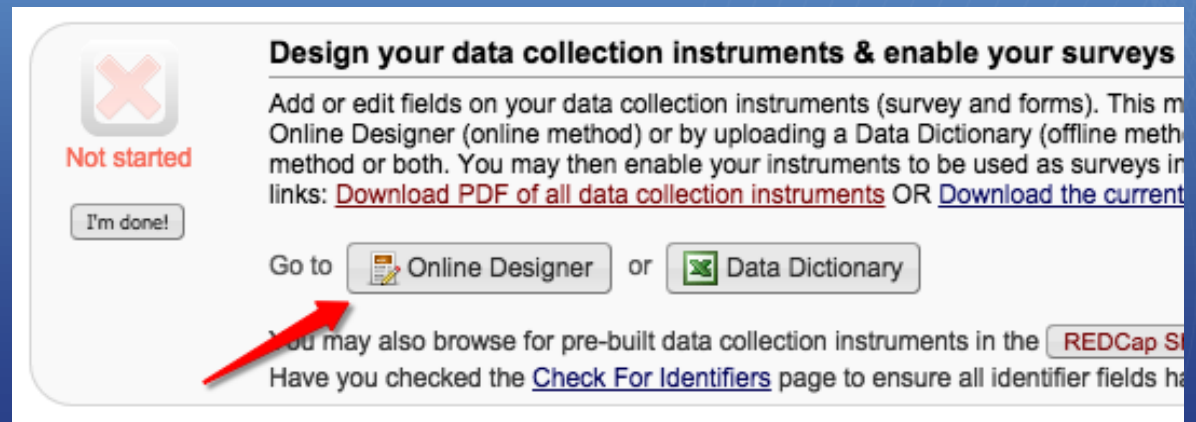
Survey Distribution Tools
- Get a public survey link or build a participant list for inviting respondents

Record Status Dashboard
- View data collection status of all records


Add / Edit Records
- Create new records or edit/view existing ones

Show data collection instruments

- Starting the designer
 - Click **Designer** link under Project Home and Design on left-hand navigation bar
 - Click **Online Designer** button under Design your data collection instruments & enable your surveys under Project Setup tab



Design your data collection instruments & enable your surveys

 **Not started**

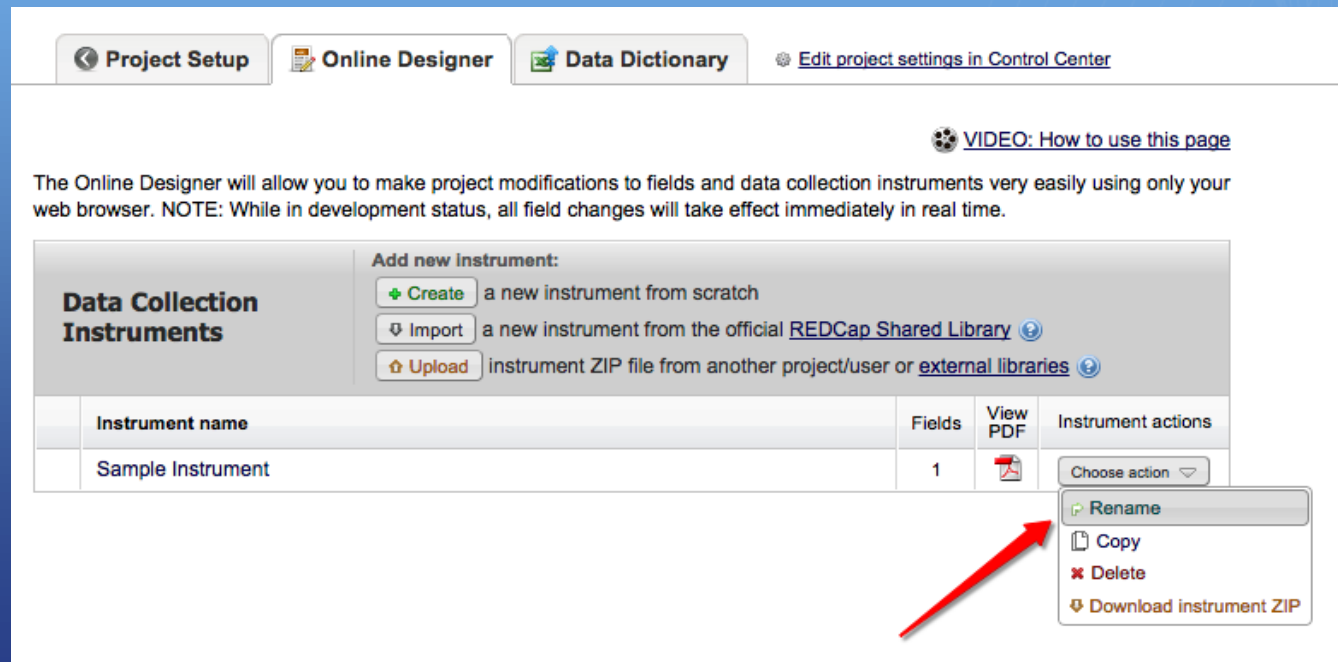
Go to or

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

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

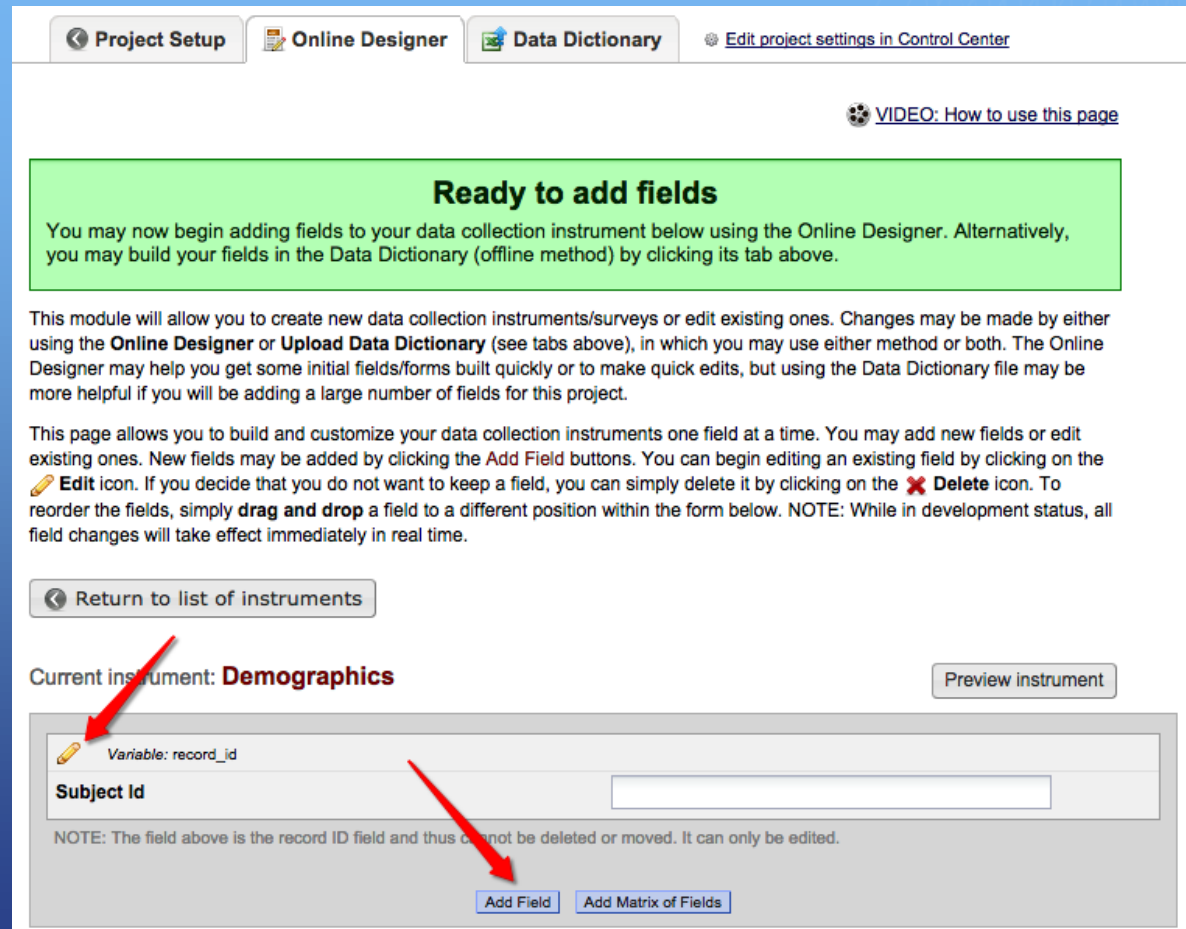
Initial Project

- For new projects using the Fred Hutch template, you will start with a single data collection instrument, **Sample Instrument**
- Do **not** delete this instrument; rename it instead

A screenshot of the REDCap Online Designer interface. At the top, there are navigation tabs: "Project Setup", "Online Designer", "Data Dictionary", and "Edit project settings in Control Center". Below the tabs, there is a video link: "VIDEO: How to use this page". A paragraph of text explains the Online Designer's purpose: "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." Below this text is a section titled "Data Collection Instruments" with a sub-section "Add new Instrument:" containing three buttons: "Create" (a new instrument from scratch), "Import" (a new instrument from the official REDCap Shared Library), and "Upload" (instrument ZIP file from another project/user or external libraries). Below the buttons is a table with columns: "Instrument name", "Fields", "View PDF", and "Instrument actions". The table contains one row for "Sample Instrument" with 1 field and a PDF icon. A dropdown menu is open for the "Sample Instrument" row, showing options: "Rename", "Copy", "Delete", and "Download instrument ZIP". A red arrow points to the "Rename" option in the dropdown menu.

Your first form

- It will always have the **record_id** (**subject_id**) field
- **Don't** delete this field; it is the primary key of your project.
- You may, however, rename it



The screenshot shows the REDCap Online Designer interface. At the top, there are navigation tabs: "Project Setup", "Online Designer" (which is active), and "Data Dictionary". A link "Edit project settings in Control Center" is also visible. Below the tabs, there is a green box with the heading "Ready to add fields" and the text: "You may now begin adding fields to your data collection instrument below using the Online Designer. Alternatively, you may build your fields in the Data Dictionary (offline method) by clicking its tab above." Below this, there are two paragraphs of text explaining the module's purpose and how to use it. A "Return to list of instruments" button is located below the text. The current instrument is "Demographics", and there is a "Preview instrument" button. The main area shows a field named "Subject Id" with a variable name "record_id" above it. A red arrow points to the "Subject Id" field, and another red arrow points to the "Add Field" button. Below the field, there is a note: "NOTE: The field above is the record ID field and thus cannot be deleted or moved. It can only be edited." At the bottom, there are two buttons: "Add Field" and "Add Matrix of Fields".

Editing data forms in Designer

- Something to consider...
 - There is **no** form-level save or cancel button for **schema** changes
 - All changes are immediate (when in development mode)
 - Thus, if you are making major changes, before you start...
 - You may want to make a backup copy of form by downloading the data dictionary

Adding a field

- Clicking the **Add Field** button, brings you to the **Add New Field** dialog
- This dialog will vary depending on the **Field Type** selected

Add Field

Add New Field

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will be added to the form on this page. For an overview of the different field types available, you may view the [Field Types video \(4 min\)](#).

Field Type: Text Box (Short Text)

Field Label

[How to use Piping](#)

Variable Name (utilized during data export)

ONLY letters, numbers, and underscores

Enable auto naming of variable based upon its Field Label?

Validation? (optional) --- None ---

— or —

Enable searching within a biomedical ontology ?

-- choose ontology to search --

Required?* No Yes

* Prompt if field is blank

Identifier? No Yes

Does the field contain Identifying information (e.g., name, SSN, address)?

Custom Alignment Right / Vertical (RV)

Align the position of the field on the page

Field Note (optional)

Small reminder text displayed underneath field

Field Annotation

[Learn about Action Tags](#)

Explanatory notes - not displayed on any page ?

Save

Cancel

Field Types

- **Standard fields**

- **Text Box**

- REDCap supports autocomplete based on biomedical ontologies (e.g., ICD-10 codes).

- **Notes Box** – paragraph of text

- **Calculated Field** – numeric calculation

- **Multiple Choice – Drop-down List** (Single Answer)

- **Multiple Choice – Radio buttons** (Single Answer)

- **Checkboxes** (Multiple Answers)

- **Yes – No** – yes/no radio button

- **True – False** – true/false radio button

- **Signature** – draw signature with mouse or finger

- **File Upload** – attach documents to form

- **Slider / Visual Analog Scale** – slider from 1 to 100

- **Descriptive Text** – does not capture data

- **Begin New Section** – also does not capture data

- **Dynamic Query (SQL)** – dropdown hooked up to another project. Requires admin to setup

- **Matrix fields**

- Adds a group of radio button or checkbox fields sharing same set of responses

Other Form Features

- Branching (skip logic)
- Validation of fields
 - Email address, date, number with min, max
- Calculated fields
- Piping of data
 - Customize labels based on data entered
- Action tags
 - Make fields read only, set default value, hide fields, etc.

This topic discussed in much greater detail in RC201 seminar

Other REDCap Features

REDCap Surveys

- A survey is a data instrument that can be completed directly by *participant*
- All data instruments *can be* enabled as surveys
- Surveys can be administered to be anonymous or non-anonymous
- Only one survey can be anonymous per project
 - Additional surveys (since they are tied to a subject) are no longer anonymous
- REDCap can invite participants to take survey via email (or text)
 - Reminders also supported and can increase response rate
- You can setup automated invites for follow-up surveys
 - Triggered based on logic on form/survey responses

This topic discussed in much greater detail in RC202 seminar

Reporting & Exporting Data

- REDCap allows you to create reports which can be viewed or be used to export data
- Data can be exported to...
 - CSV/Excel
 - SPSS
 - SAS
 - R
 - STATA

This topic discussed in much greater detail in RC204 seminar

Security

- REDCap allows you to grant security at a very fine grain per user or per roles (groups of users)
- Can also use Data Access Groups (DAGs) to segment data per sites (i.e., Site A can only see Site A data, Site B can only see Site B data, etc.)

This topic discussed in much greater detail in RC204 seminar

Other Capabilities/Features (1 of 2)

- Development and Production modes
 - Ability to draft changes when in production
- Support for instruments that repeat on either a fixed schedule or ad-hoc
- Randomization support
- Built-in audit trail
- Support for field comments
- Data Quality Rules
- Data Import

These topics discussed in much greater detail in other seminars

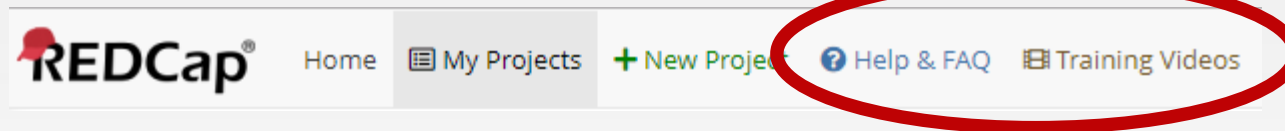
Other Capabilities/Features (2 of 2)

- Support for double-data-entry
- Records can be locked/e-signed
- REDCap supports advanced capabilities via programming hooks...
 - Data entry triggers (run code when a record is saved)
 - API programming (other systems can pull or push data from/to REDCap)
 - Data entry hooks / external modules (customize the data entry experience in REDCap)
- Offline support for mobile devices

These topics discussed in much greater detail in other seminars

Training & Docs

- Right within REDCap...
 - Note: you must close any project and go to the Home or My Projects tab



- CDS provides support in the form...
 - Free training & videos
 - Free office hours every Monday 3-3:30pm on MS Teams (link on REDCap homepage)
 - Support ticketing system
 - Option to help with setup and programming
 - See Fred Hutch REDCap news at <http://redcap.fredhutch.org> for links to all above services

Summary

- REDCap is a rich research-oriented EDC with support for surveys
- REDCap is a vibrant product with a bright future
- REDCap has support for logging, import, export, longitudinal studies, email/texting, mobile devices, role-base security, ...
- REDCap can be extended via a number of programming extensions
- REDCap has lots of online help, videos

More Information

- Visit... <http://redcap.fredhutch.org>
- For help, submit a help ticket, by emailing...
 - redcaphelp@fredhutch.org



Thank you!

redcaphelp@fredhutch.org
Collaborative Data Services (CDS)