Introduction to

REDCap

Research Electronic Data Capture

THE UNIVERSITY OF CHICAGO MEDICINE & BIOLOGICAL SCIENCES

CENTER FOR RESEARCH INFORMATICS

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Senior Systems Analyst / REDCap Administrator

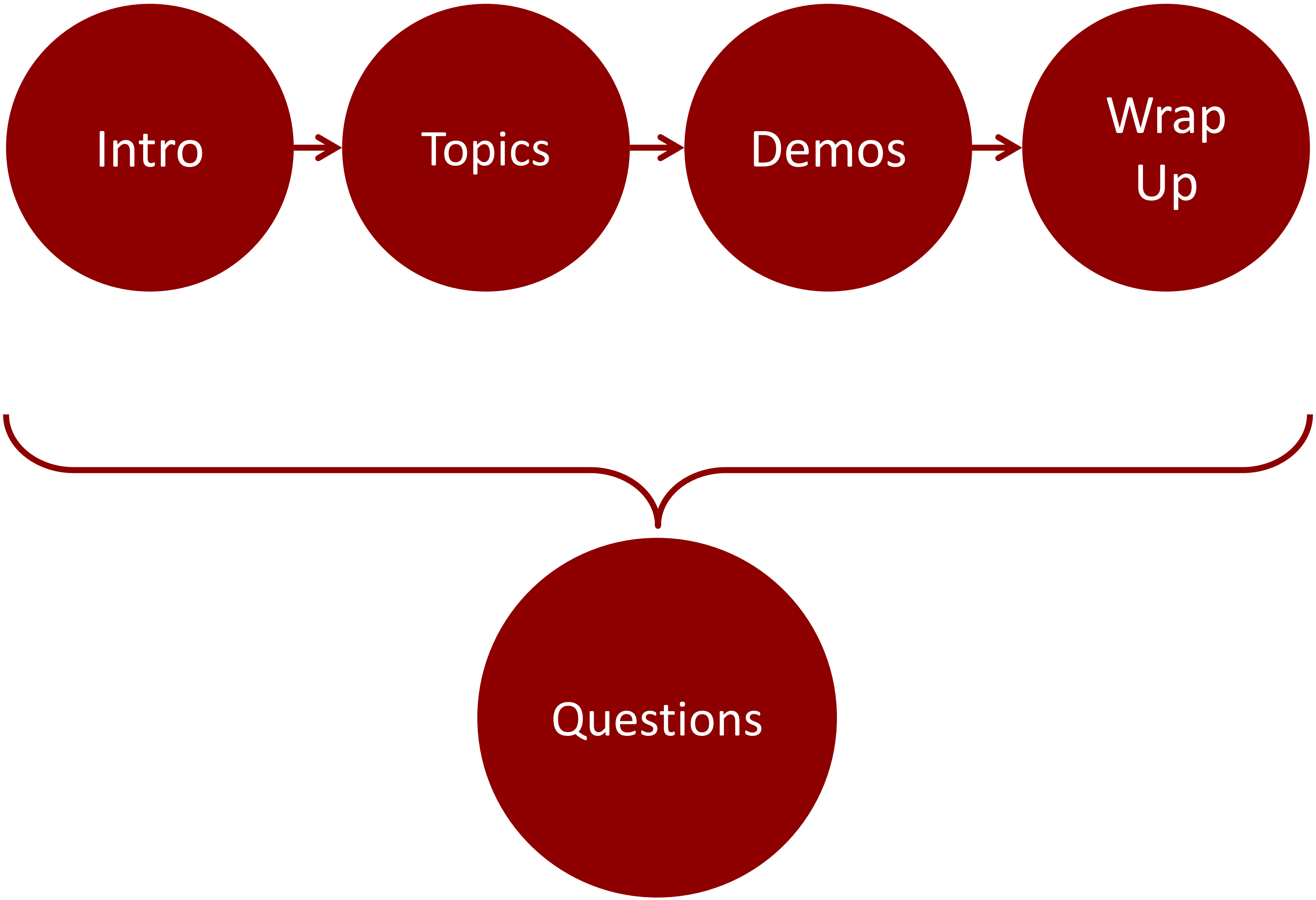
SEMINAR SERIES

Introduction to REDCap
11/19/19

Beyond the REDCap Basics
2/20/20

All About REDCap Surveys
4/14/20

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


Intro
Topics
Demos
Wrap Up
Questions

WHO IS THE CRI?

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

cri.uchicago.edu

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.

REDCAP HISTORY

THEN

2004: Created at Vanderbilt

2006: Global consortium

2011: University of Chicago

2011: CRI Created

2012: REDCap at UChicago

NOW

Worldwide:

- 3,700 institutions
- 131 countries
- 793,000 projects
- 1,000,000 users

UChicago:

- 5,400 projects
- 5,600 users

WHAT ARE THE ADVANTAGES?

Accessible

- web-based access (on and off campus)
- access for multi-site collaborations

Customizable

- fast and flexible to design
- modifications at anytime

Accurate

- ensures consistent and accurate data entry
- data quality checks to look for errors

Secure

- user authentication against BSDAD or UCHAD
- nightly backups, weekly vulnerability scans

Free!

- includes training, design guidance, troubleshooting

SEMINARS TOPICS

Project Setup

- Creating a project
- Adding and editing fields
- Optional modules and customizations
- Testing your project
- Moving to production

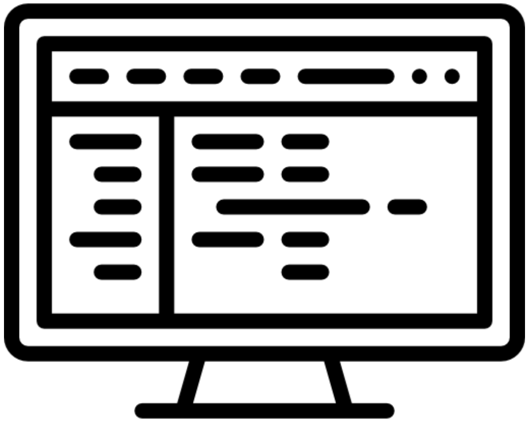
Using Surveys

- Enabling surveys
- Settings & customizations
- Public link vs private links

Applications & Tools

- Record status dashboard
- Project change log
- Exports and reports
- Data dictionary
- File repository

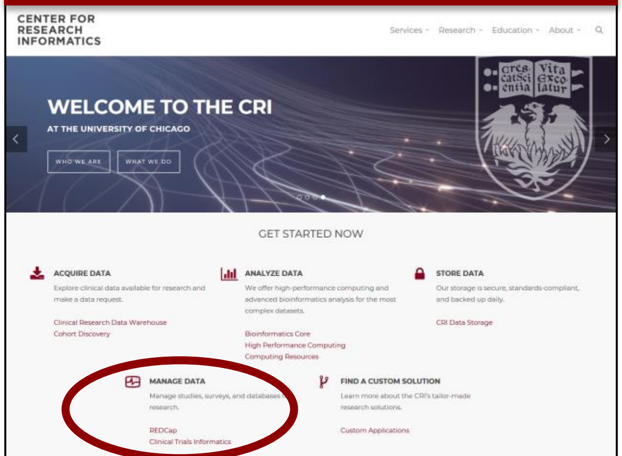
Messenger
Smart Devices
Mobile App



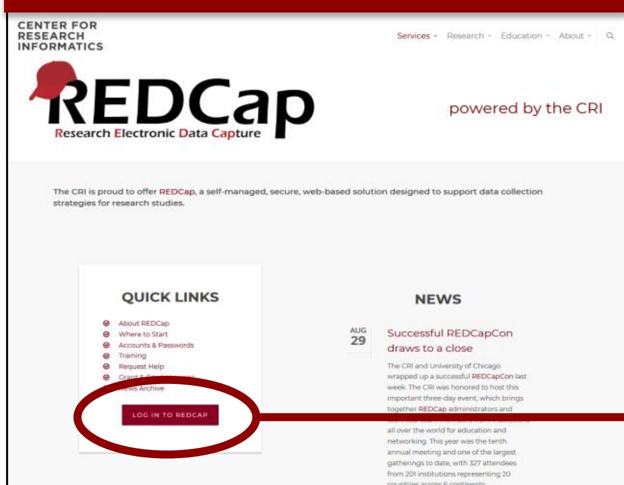
Project Setup

WHERE IS REDCAP?

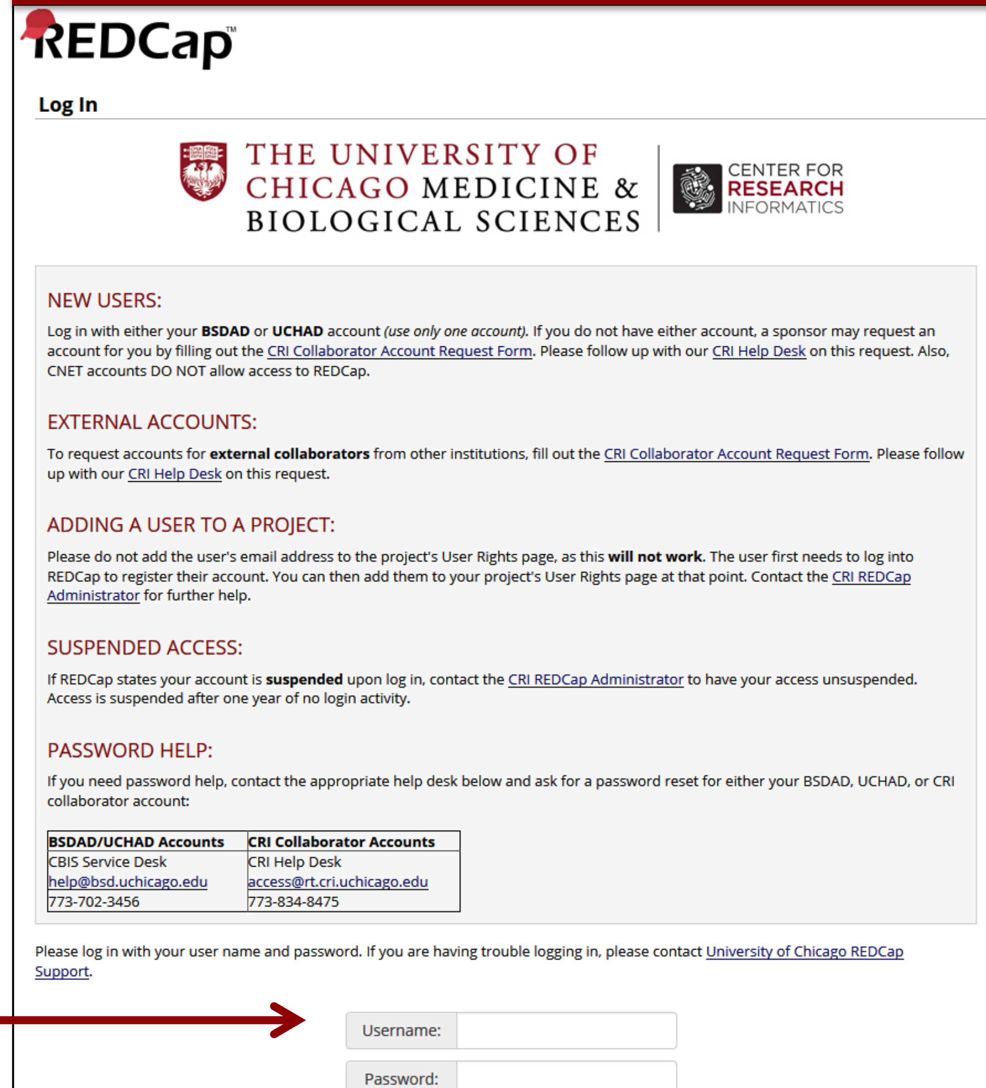
cri.uchicago.edu



cri.uchicago.edu/redcap



redcap.uchicago.edu



REDCap

Log In

THE UNIVERSITY OF CHICAGO MEDICINE & BIOLOGICAL SCIENCES | CENTER FOR RESEARCH INFORMATICS

NEW USERS:

Log in with either your **BSDAD** or **UCHAD** account *(use only one account)*. If you do not have either account, a sponsor may request an account for you by filling out the CRI Collaborator Account Request Form. Please follow up with our CRI Help Desk on this request. Also, CNET accounts DO NOT allow access to REDCap.

EXTERNAL ACCOUNTS:

To request accounts for **external collaborators** from other institutions, fill out the CRI Collaborator Account Request Form. Please follow up with our CRI Help Desk on this request.

ADDING A USER TO A PROJECT:

Please do not add the user's email address to the project's User Rights page, as this **will not work**. The user first needs to log into REDCap to register their account. You can then add them to your project's User Rights page at that point. Contact the CRI REDCap Administrator for further help.

SUSPENDED ACCESS:

If REDCap states your account is **suspended** upon log in, contact the CRI REDCap Administrator to have your access unsuspended. Access is suspended after one year of no login activity.

PASSWORD HELP:

If you need password help, contact the appropriate help desk below and ask for a password reset for either your BSDAD, UCHAD, or CRI collaborator account:

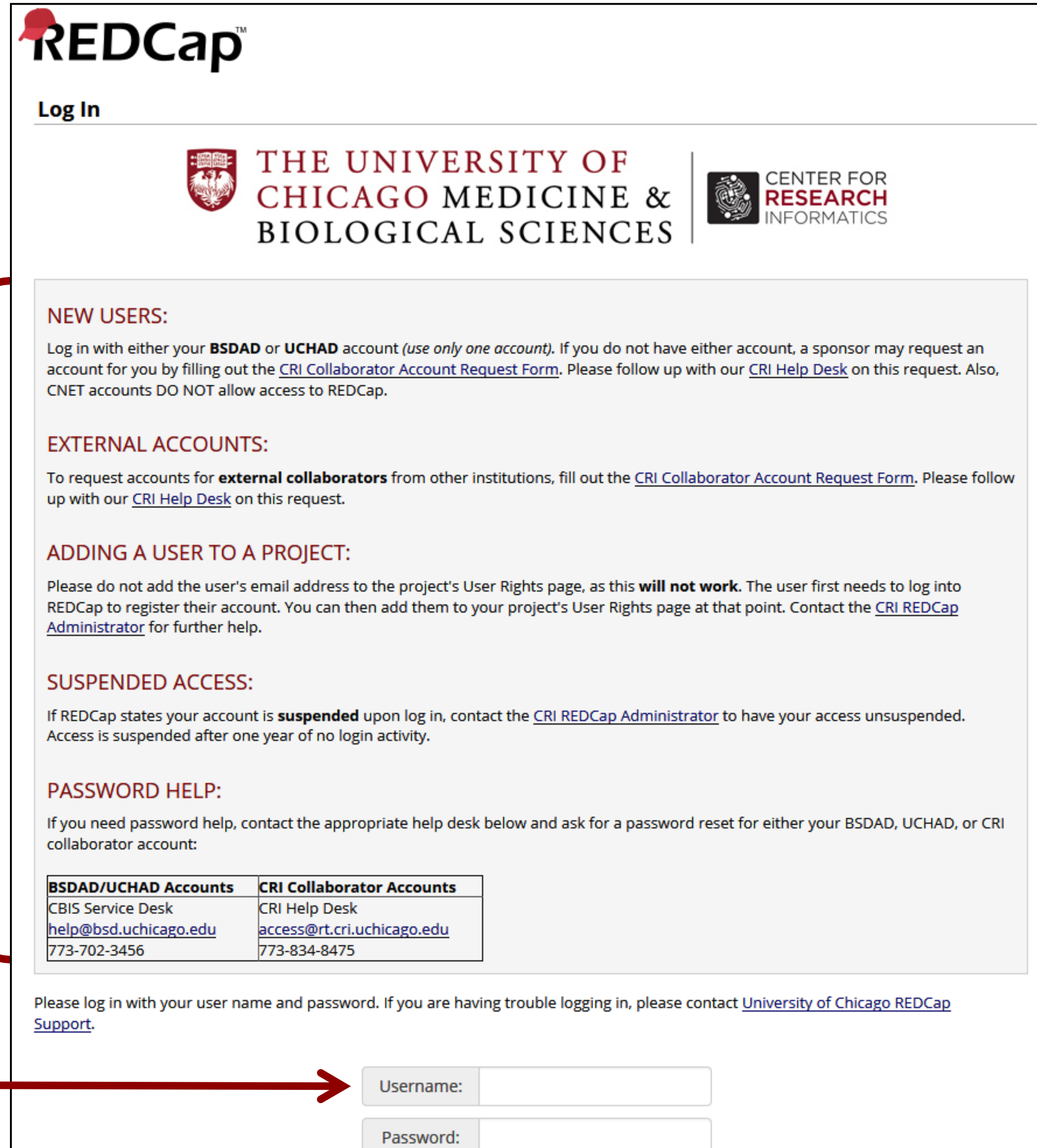
BSDAD/UCHAD Accounts	CRI Collaborator Accounts
CBIS Service Desk	CRI Help Desk
help@bsd.uchicago.edu	access@rt.cri.uchicago.edu
773-702-3456	773-834-8475

Please log in with your user name and password. If you are having trouble logging in, please contact University of Chicago REDCap Support.

Username:

Password:

LOGGING INTO REDCAP



REDCap™

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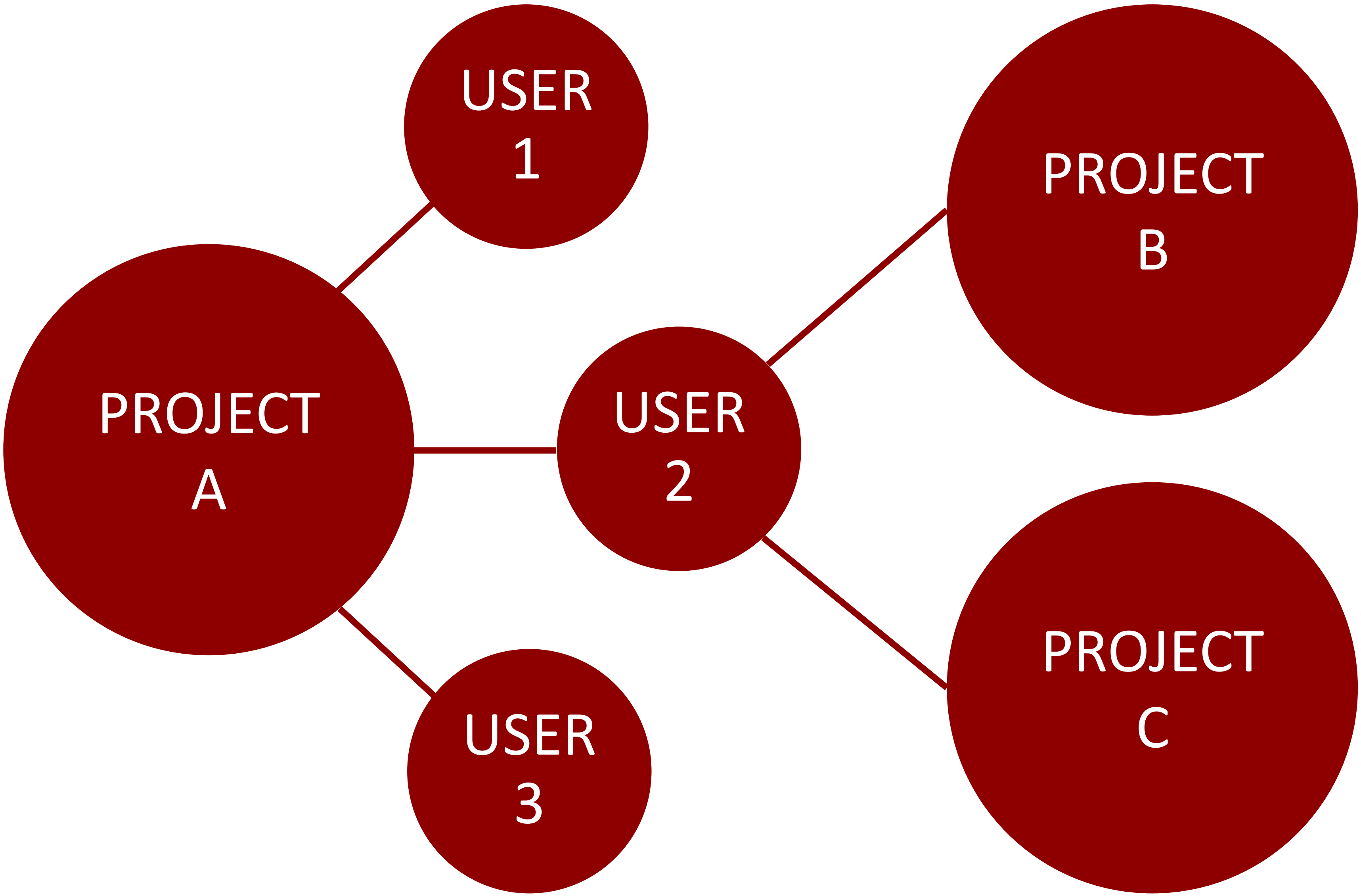
Username:

Password:

HELPFUL INFORMATION!

BSDAD or UCHAD

ACCESS EXPLAINED



HOME PAGE

Training Videos Navigational Bar

REDCap | Home | My Projects | New Project | Help & FAQ | Training Videos | Send-It | Messenger | Logged in as **t.cri.redcap1** | My Profile | Log out

Welcome to REDCap!

REDCap is a mature, secure web application for building and managing online surveys and databases. Using REDCap's stream-lined process for rapidly developing projects, you may create and design projects using 1) the online method from your web browser using the Online Designer; and/or 2) the offline method by constructing a 'data dictionary' template file in Microsoft Excel, which can be later uploaded into REDCap. Both surveys and databases (or a mixture 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 University of Chicago REDCap Support.

REDCap Features

Build online surveys and databases quickly and securely - Create and design your project rapidly using secure web authentication from your browser. No extra software is required.

Fast and flexible - Conception to production-level survey/database in less than one day.

Export data to common data analysis packages - Export your data to Microsoft Excel, PDF, SAS, Stata, R, or SPSS for analysis.

Ad Hoc Reporting - Create custom queries for generating reports to view or download.

Scheduling - Utilize a built-in project calendar and scheduling module for organizing your events and appointments.

Easily manage a contact list of survey respondents or create a simple survey link - Build a list of email contacts, create custom email invitations, and track who responds, or you may also create a single survey link to email out or post on a website.

TRAINING VIDEOS

REDCap Home | My Projects | + New Project | Help & FAQ | Training Videos | Send-It | Messenger | Control Center | Logged in as **jacevedo** | My Profile | Log out

REDCap Training Videos

Just Getting Started?
Explore these overviews of fundamental concepts and features.

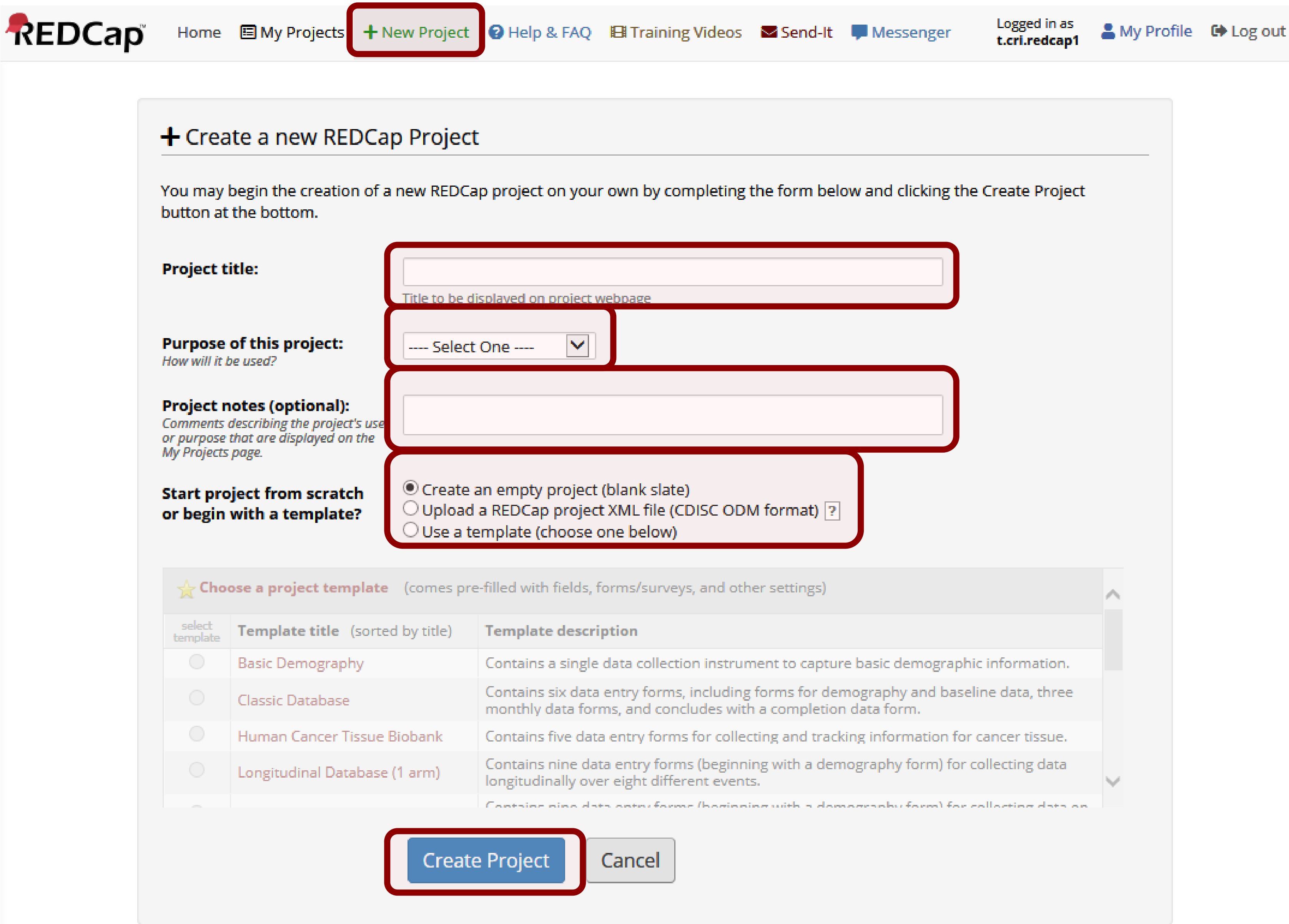
Title	Description	Watch Video
Brief Overview	A quick summary of what REDCap is and what it can do.	4 minutes
Detailed Overview	This video provides an overview of basic functions and features within a REDCap project. It will serve as a starting point for learning about the basic concepts of REDCap, what REDCap projects are, how to create them, and how to use them.	14 minutes
Data Entry Overview	A focused exploration of basic data entry workflow. Suitable for training data entry staff.	19 minutes

Building a Project
Learn how to build and modify data collection instruments.

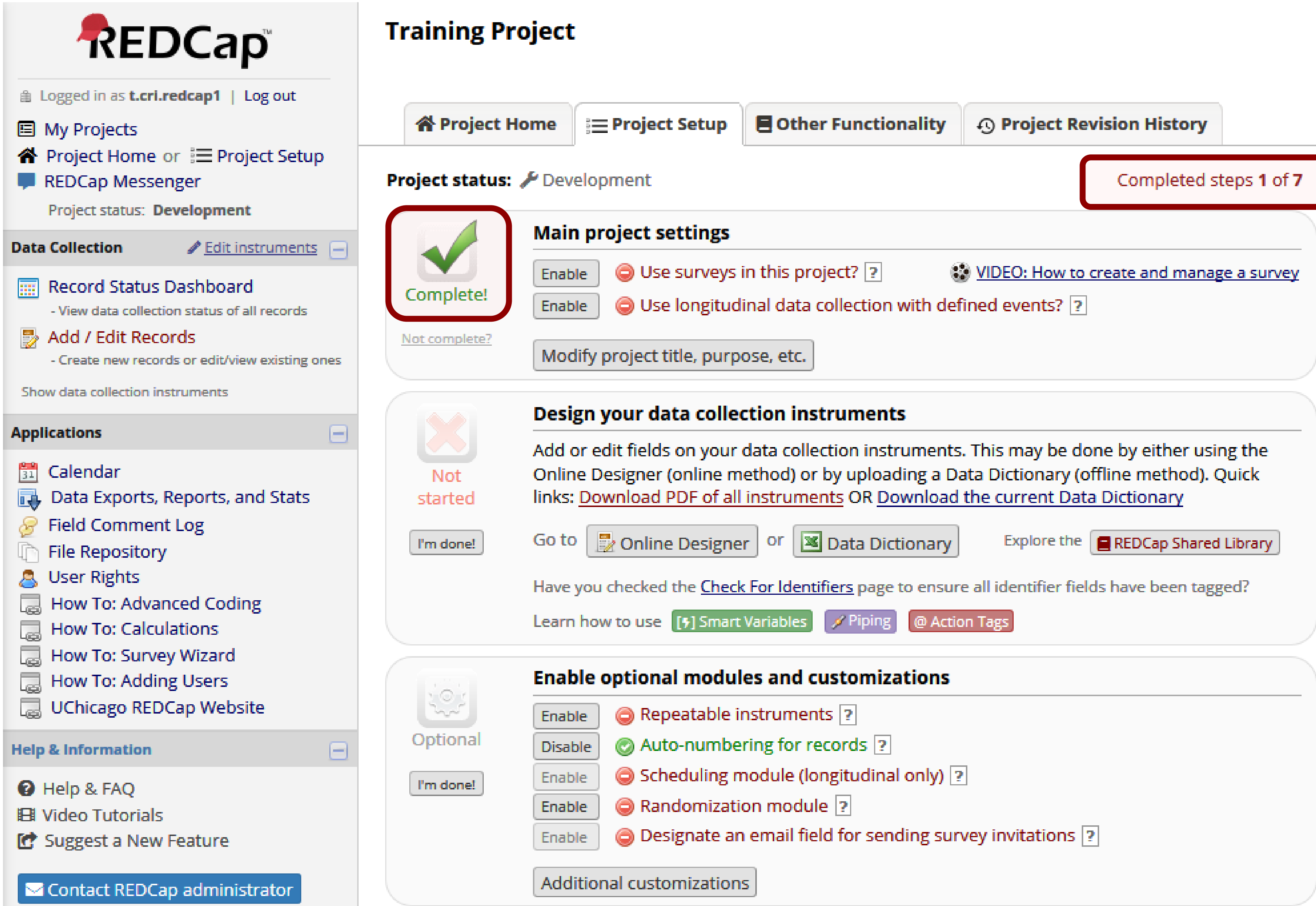
Title	Description	Watch Video
Introduction to Instrument Development	An introduction to the Online Designer and Data Dictionary methods of instrument development.	6 minutes
Online Designer	This online tool is the quickest and most intuitive method for making instrument modifications.	5 minutes

** Use Chrome, not IE or Firefox.*

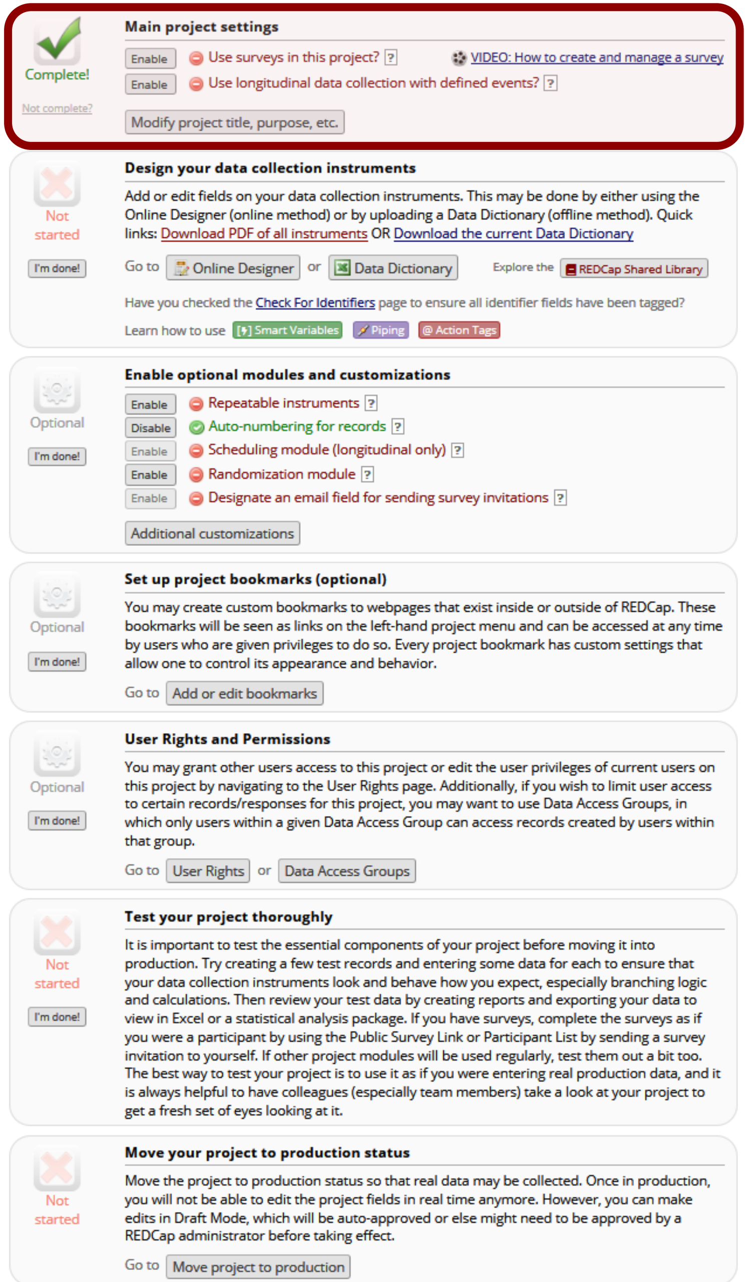
CREATE A PROJECT



PROJECT SETUP STEPS

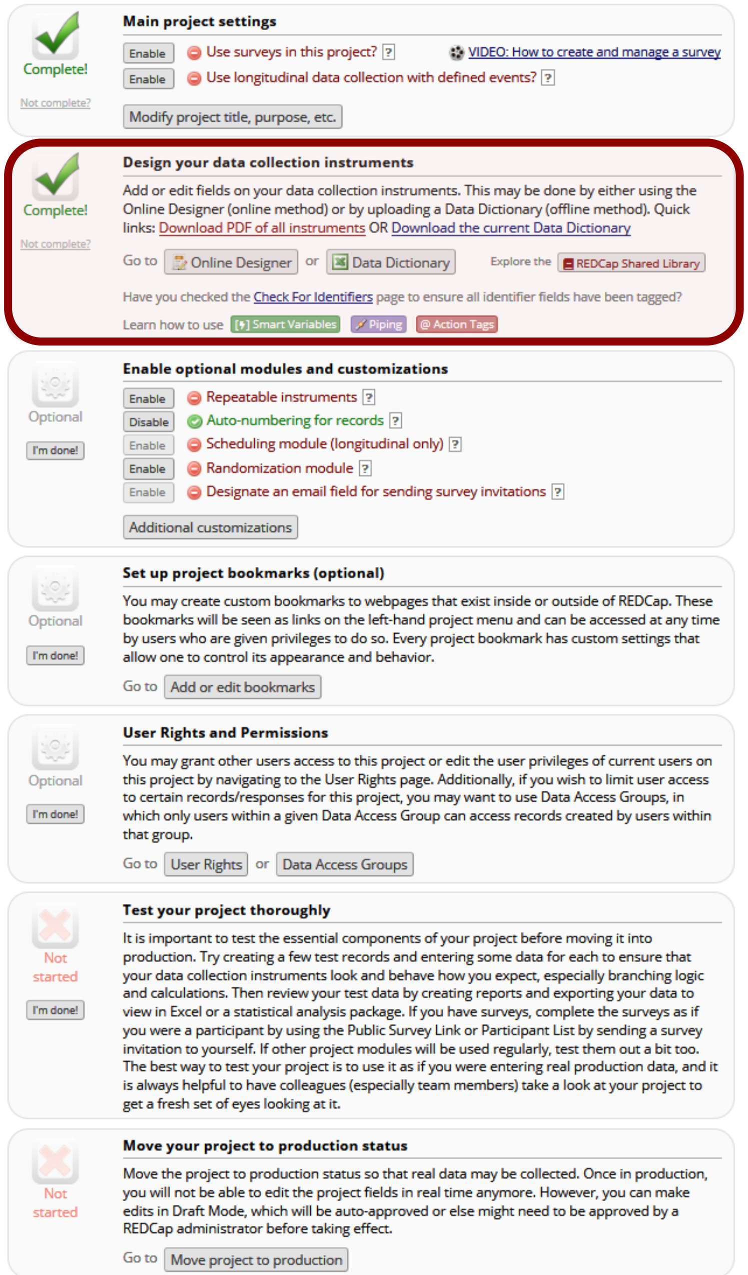


STEP 1: MAIN PROJECT SETTINGS



- Modify project title, purpose, etc.
- Enable surveys
- Enable longitudinal data collection

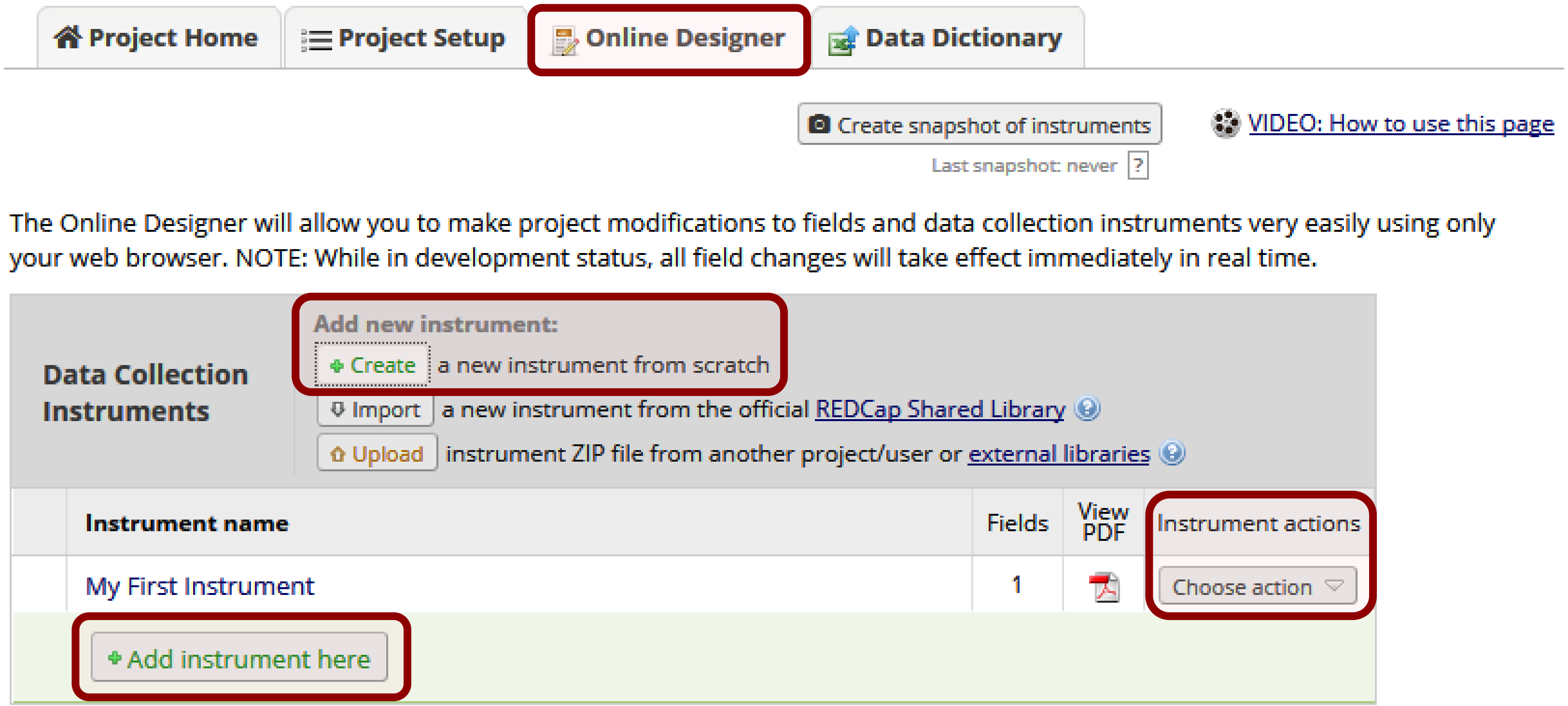
STEP 2: DATA COLLECTION INSTRUMENTS



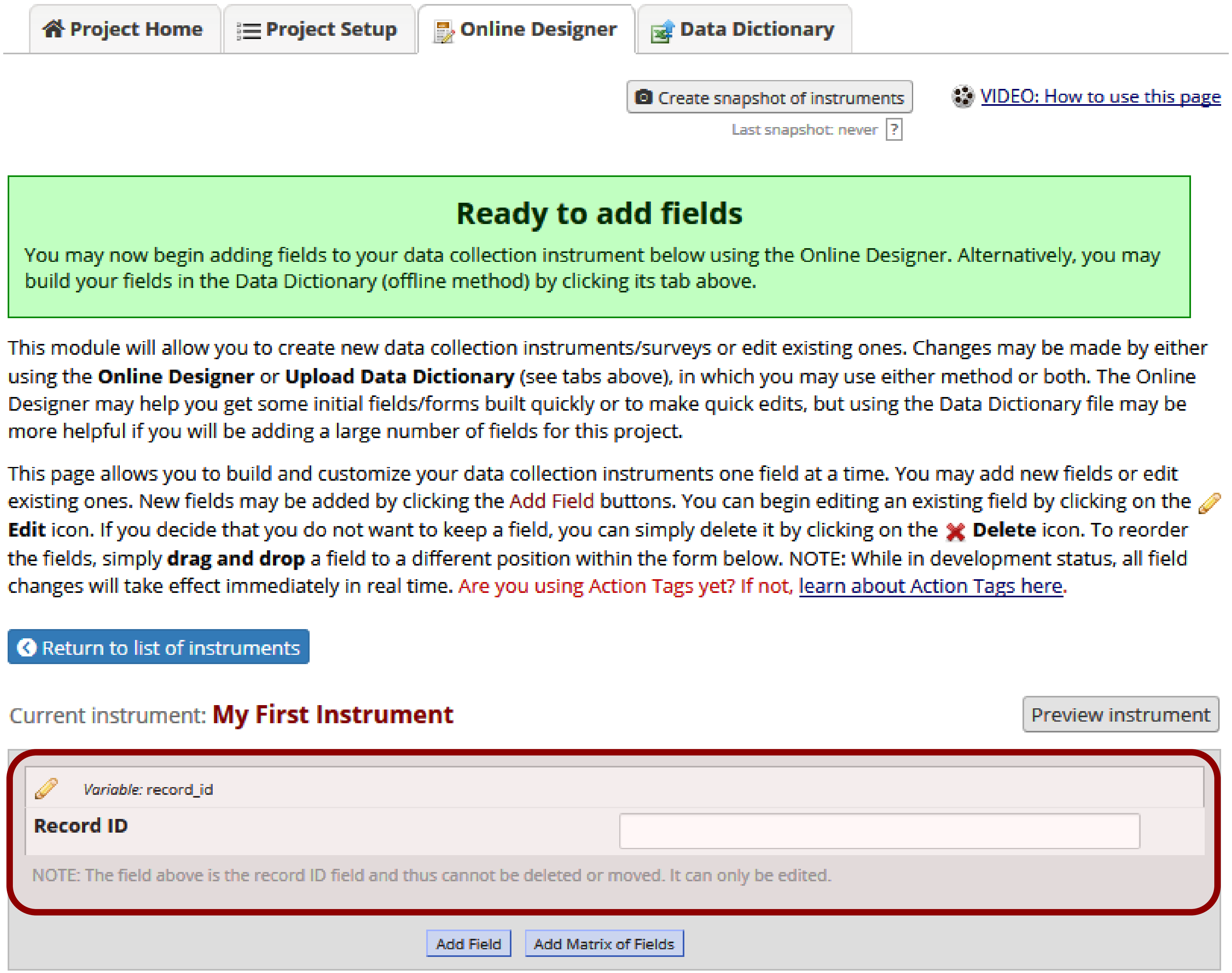
- Online Designer
- Data Dictionary*
- Shared Library (Global)
- Special Features*
  - Smart Variables
  - Piping
  - Action Tags

* *(covered in next seminar)*

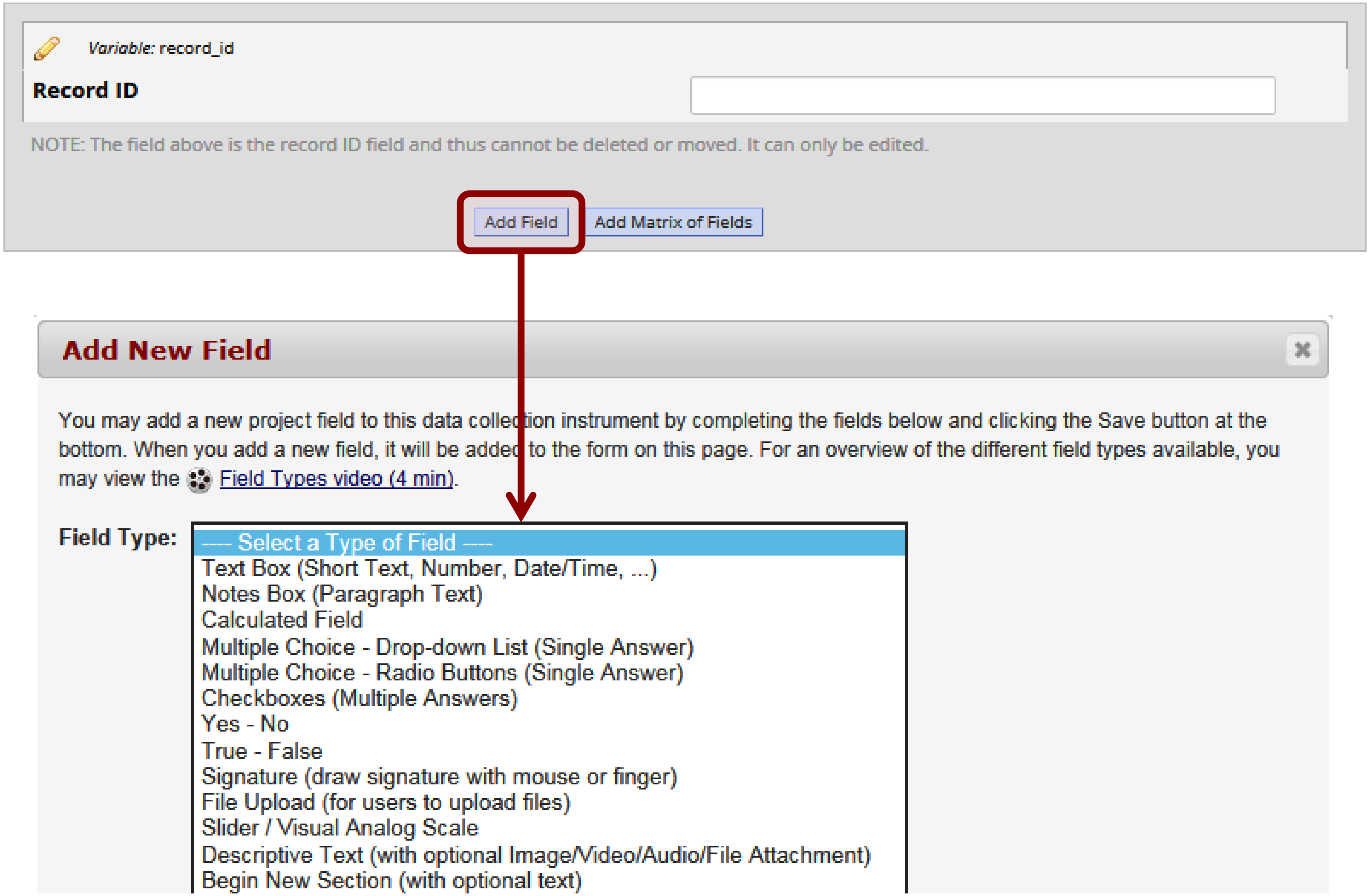
ONLINE DESIGNER



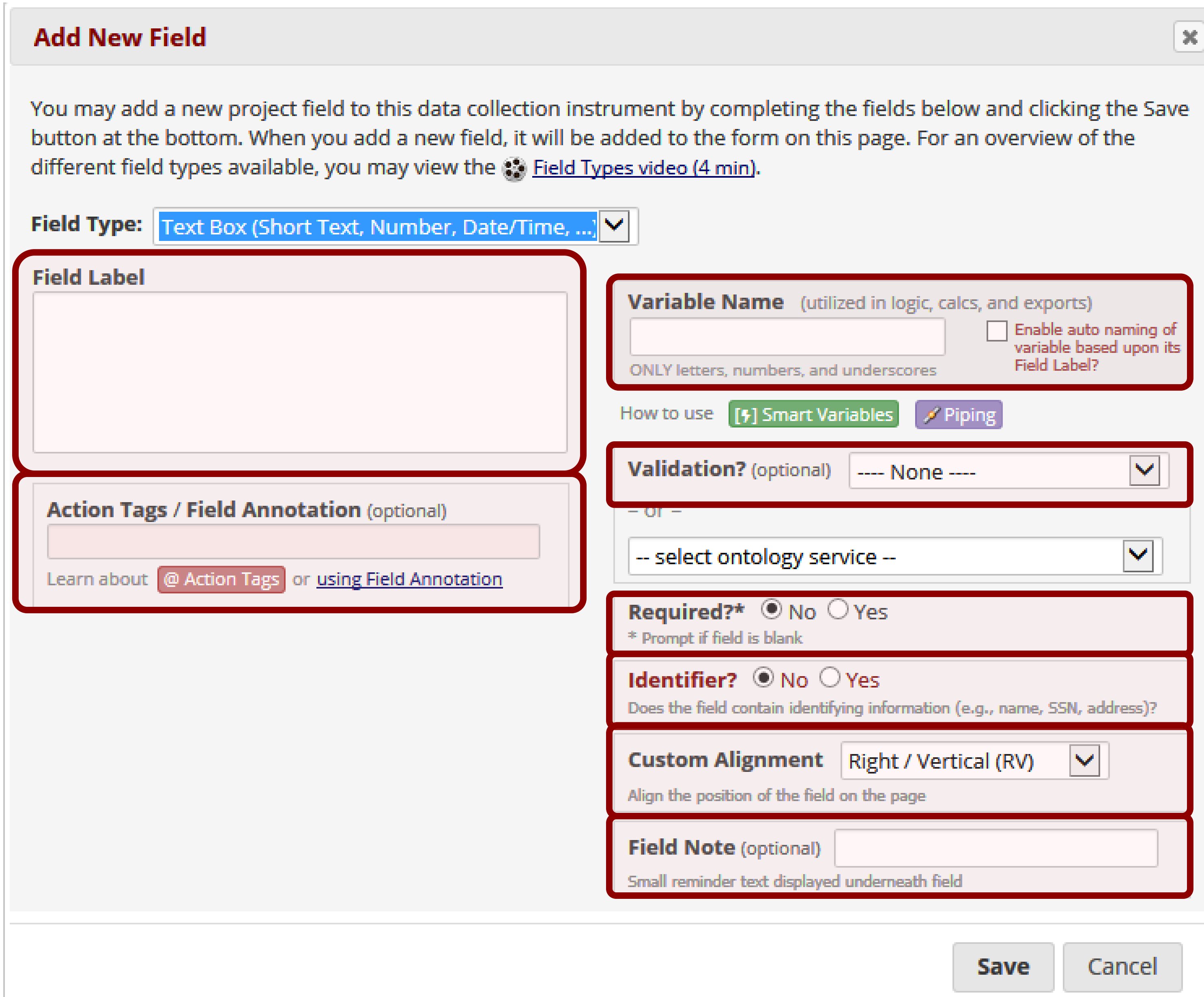
RECORD IDENTIFIER



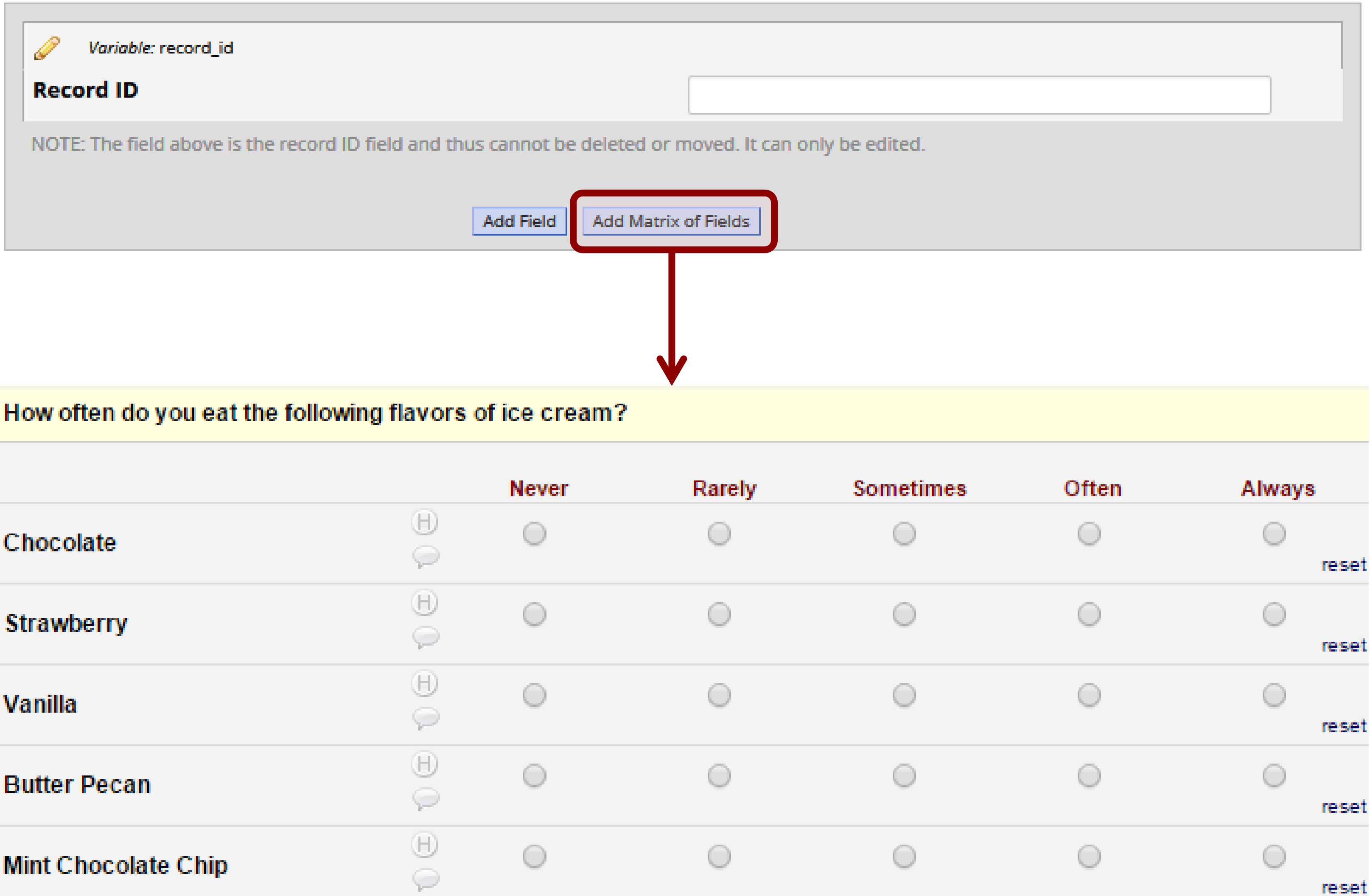
FIELD TYPES


Variable: record_id
Record ID
NOTE: The field above is the record ID field and thus cannot be deleted or moved. It can only be edited.
Add Field
Add Matrix of Fields
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:
---- Select a Type of Field ----
Text Box (Short Text, Number, Date/Time, ...)
Notes Box (Paragraph Text)
Calculated Field
Multiple Choice - Drop-down List (Single Answer)
Multiple Choice - Radio Buttons (Single Answer)
Checkboxes (Multiple Answers)
Yes - No
True - False
Signature (draw signature with mouse or finger)
File Upload (for users to upload files)
Slider / Visual Analog Scale
Descriptive Text (with optional Image/Video/Audio/File Attachment)
Begin New Section (with optional text)

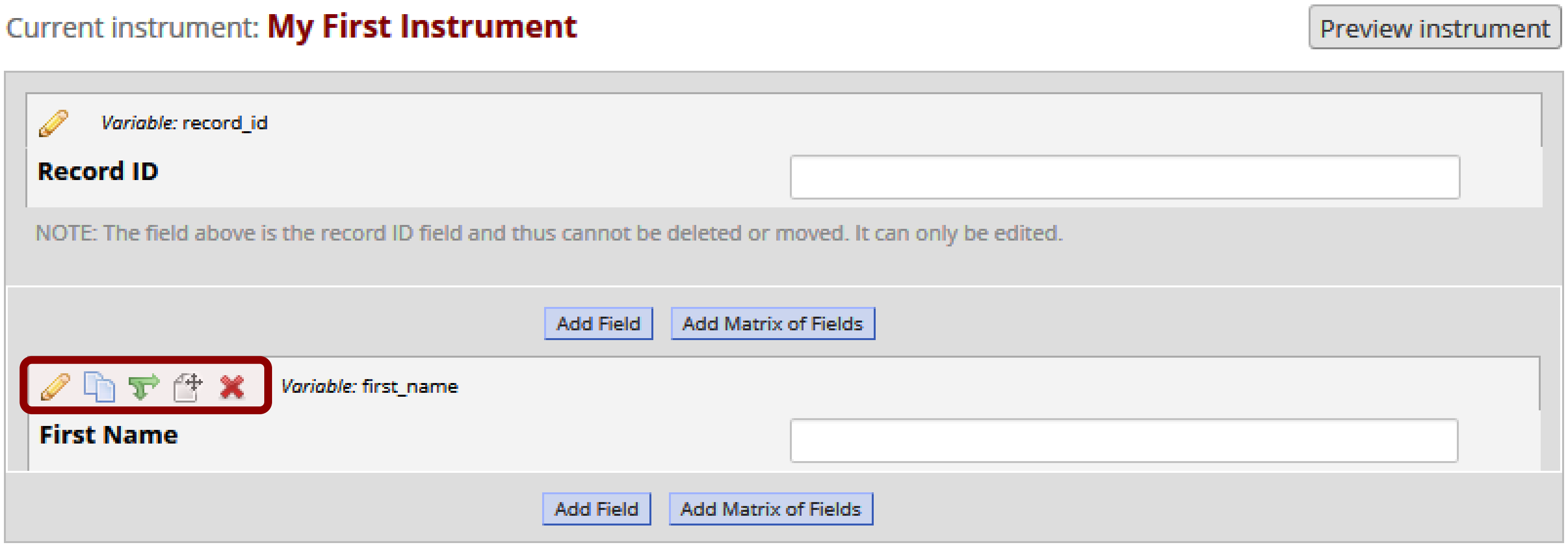
FIELD DESIGN



MATRIX OF FIELDS

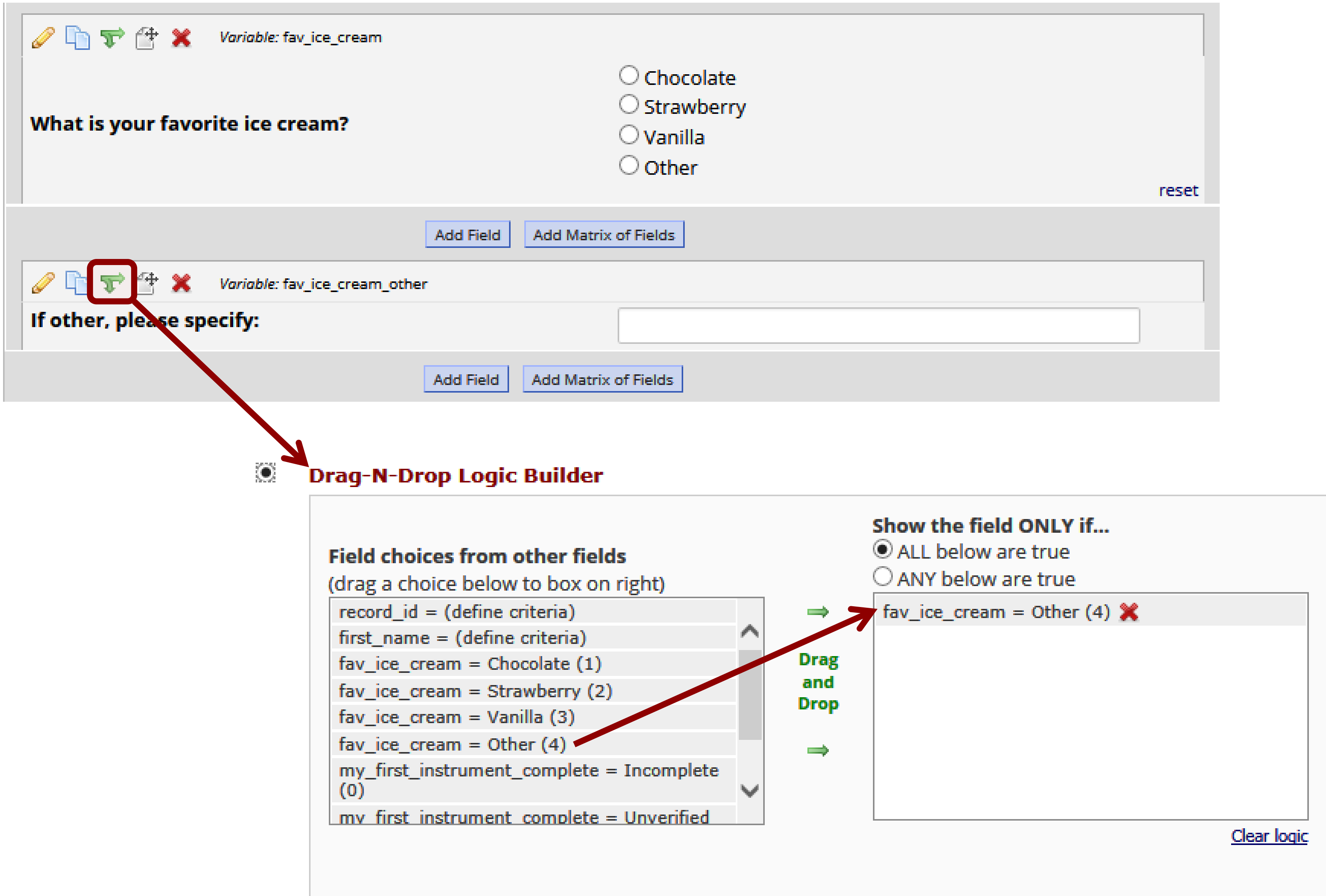


EDIT/COPY/MOVE/DELETE FIELDS

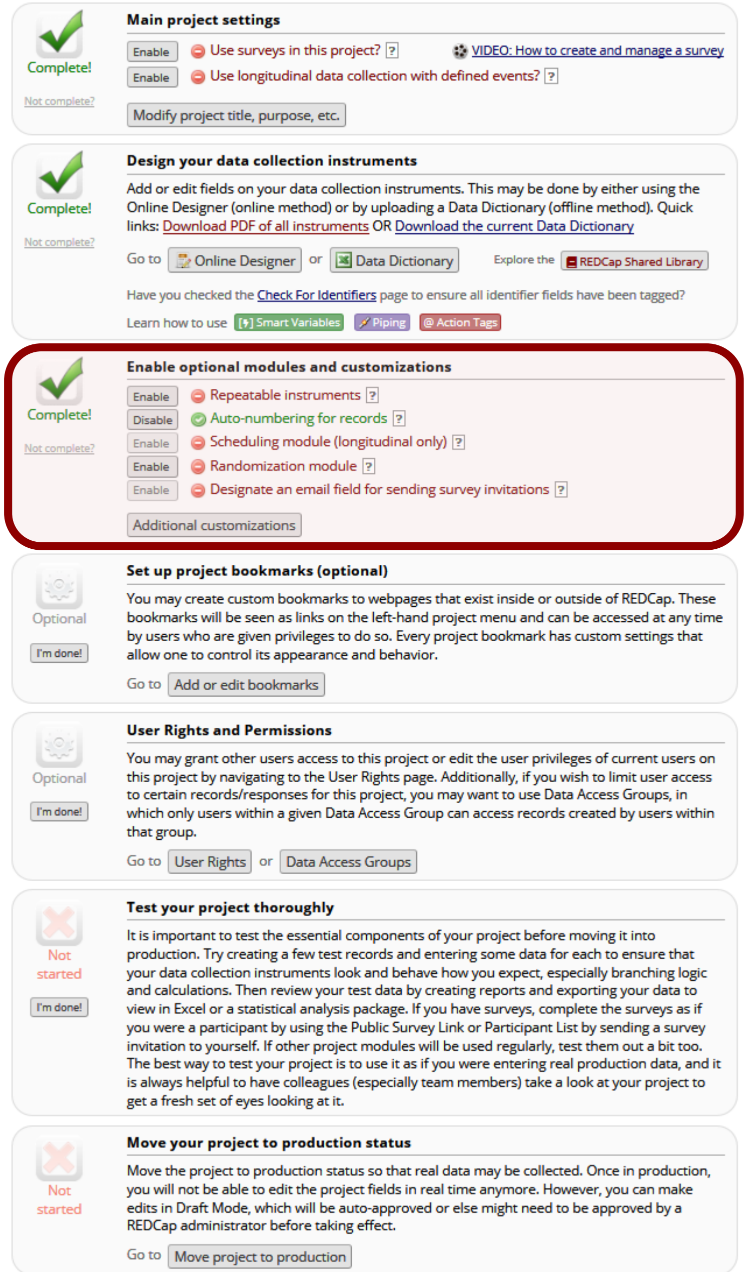


- pencil = edit
- 2 papers = copy
- green arrows = branching logic
- paper w/arrow = move
- red x = delete

BRANCHING LOGIC



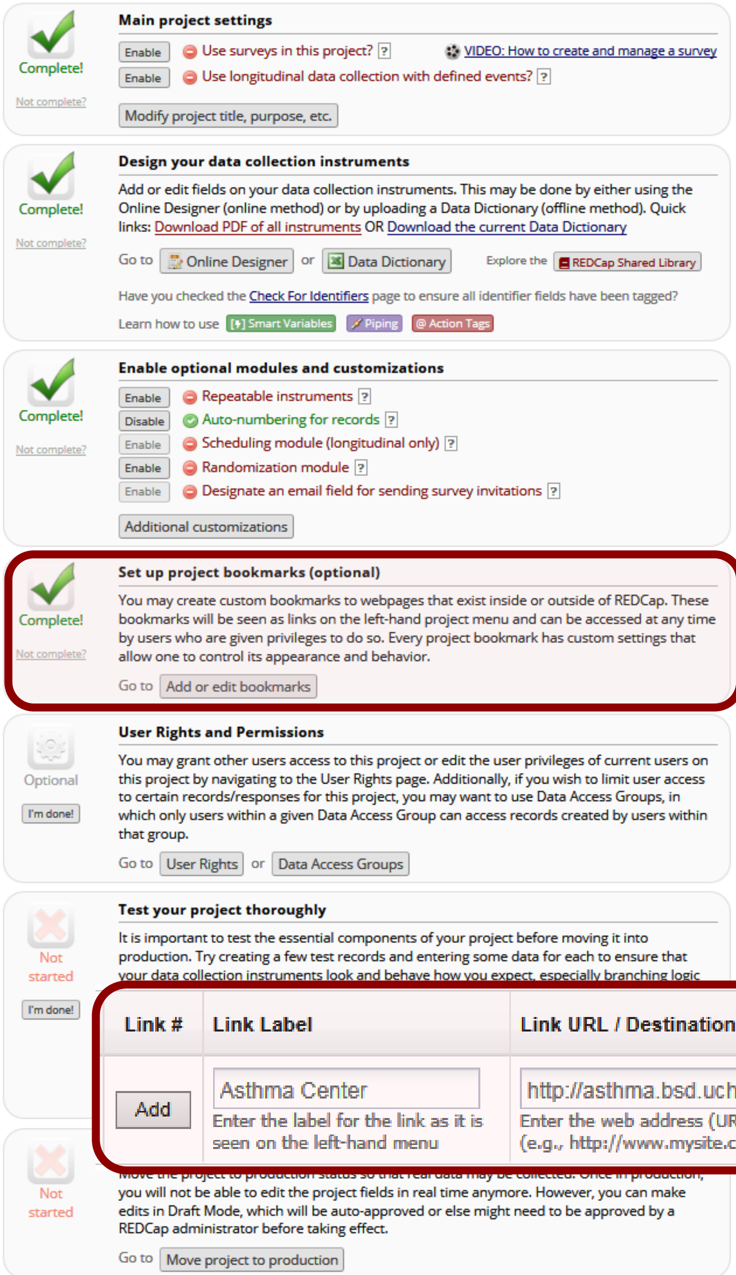
STEP 3: OPTIONAL MODULES & CUSTOMIZATIONS



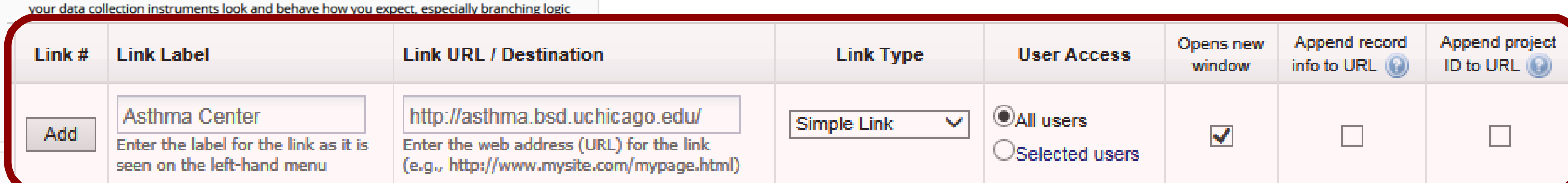
- Repeatable Instruments*
- Auto-numbering IDs
- Scheduling (Longitudinal)*
- Randomization*
- Designate an email for survey invitations*

* *(covered in next seminar)*

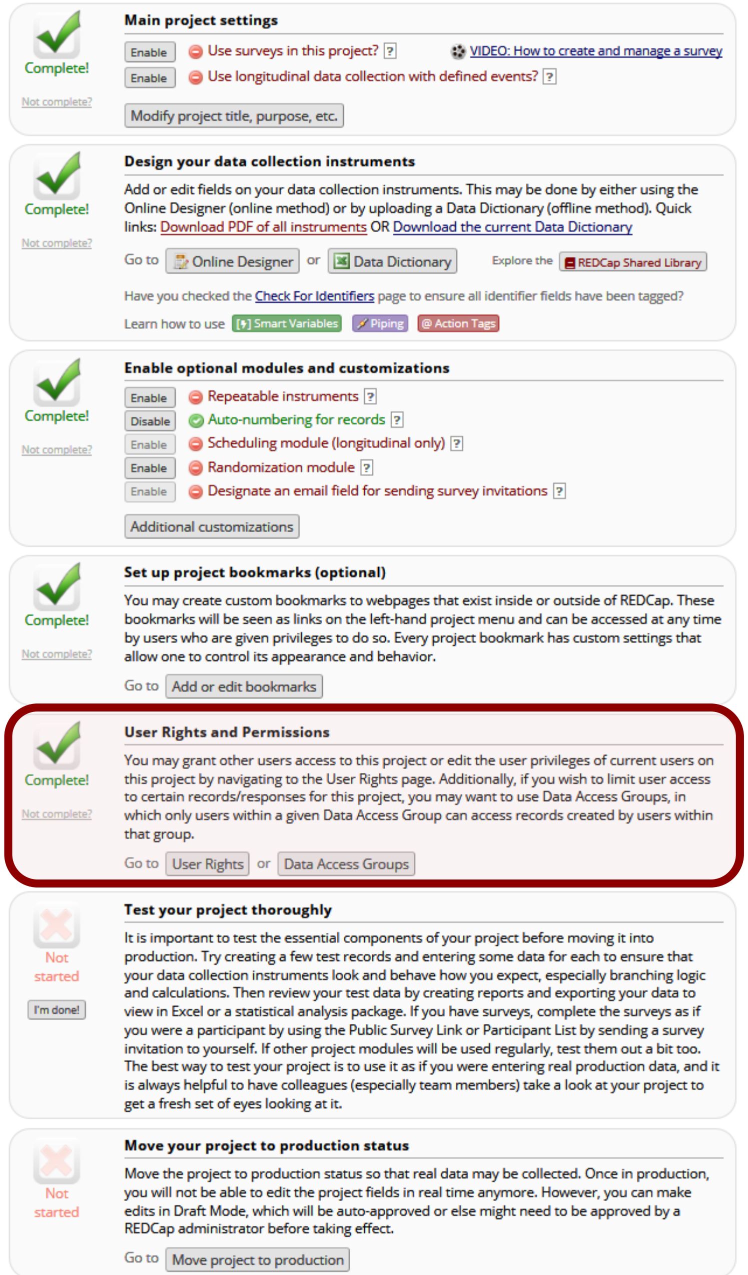
STEP 4: PROJECT BOOKMARKS (OPTIONAL)



- Custom bookmarks
- Appear in Applications menu on the left
- Accessible by all project users
- Example:
  - Department website
  - Study survey
  - External website



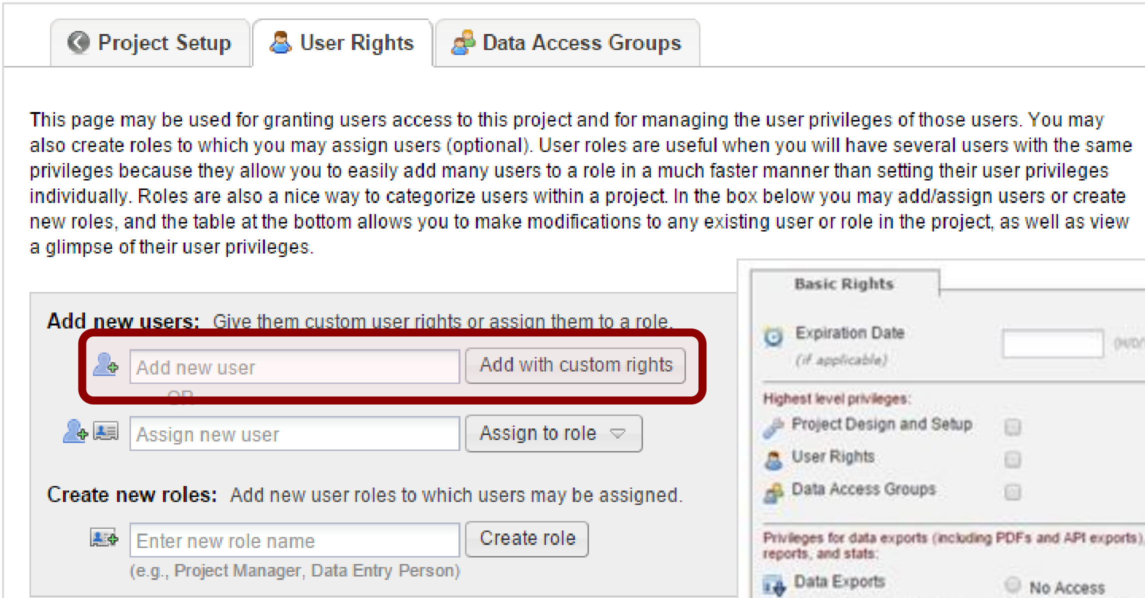
STEP 5: USER RIGHTS

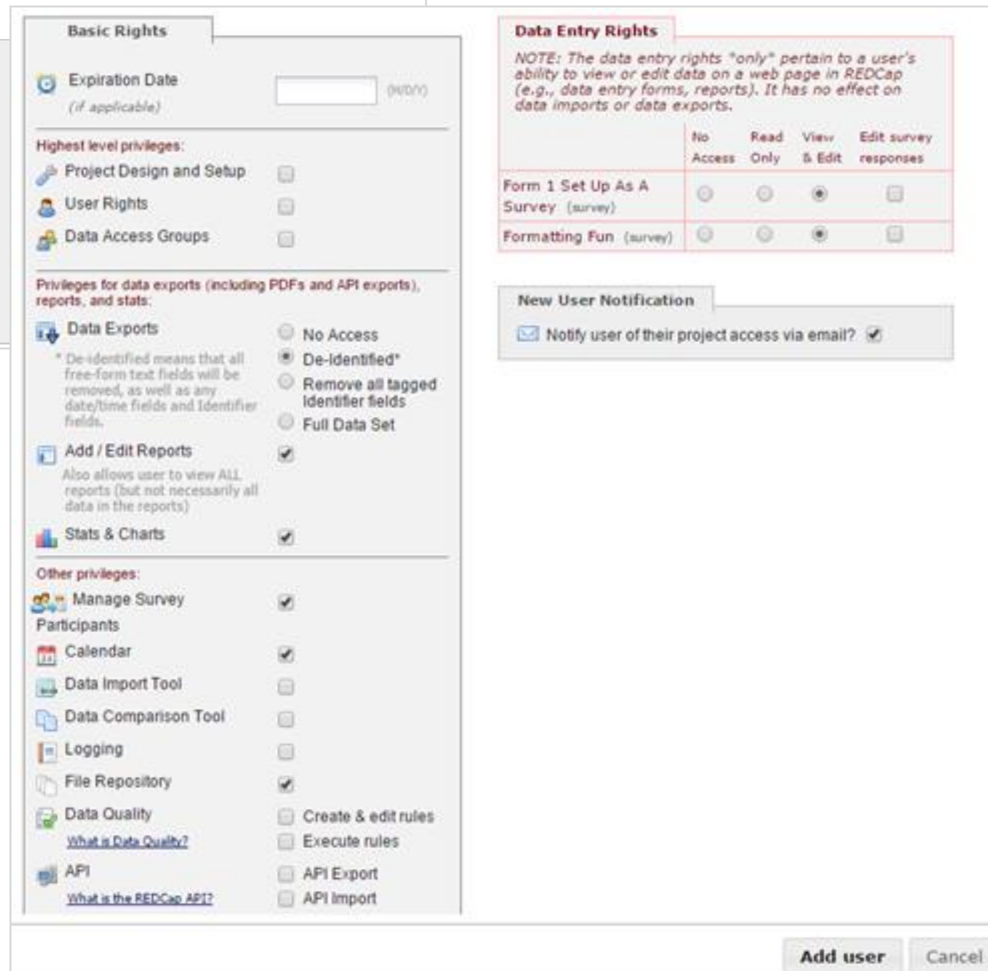


- Add users to your project with custom user rights
- Data Access Groups*

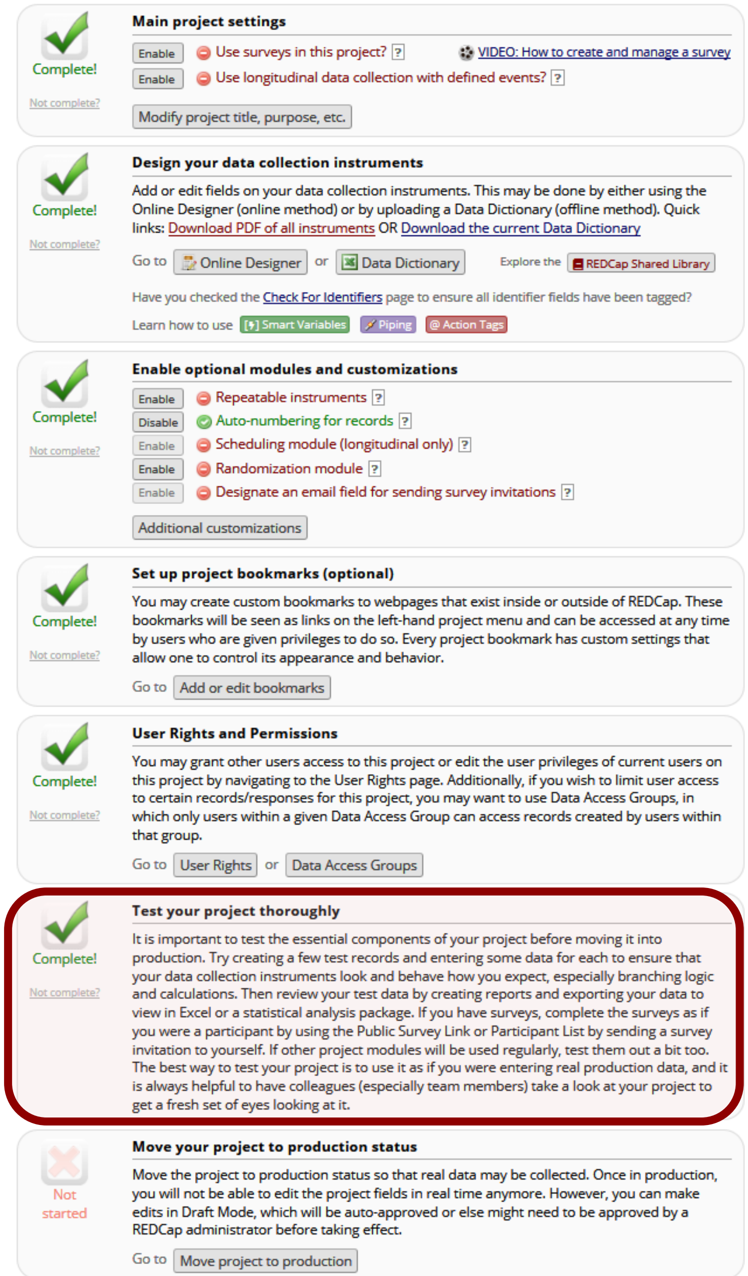
* *(covered in next seminar)*

STEP 5: ADDING USERS



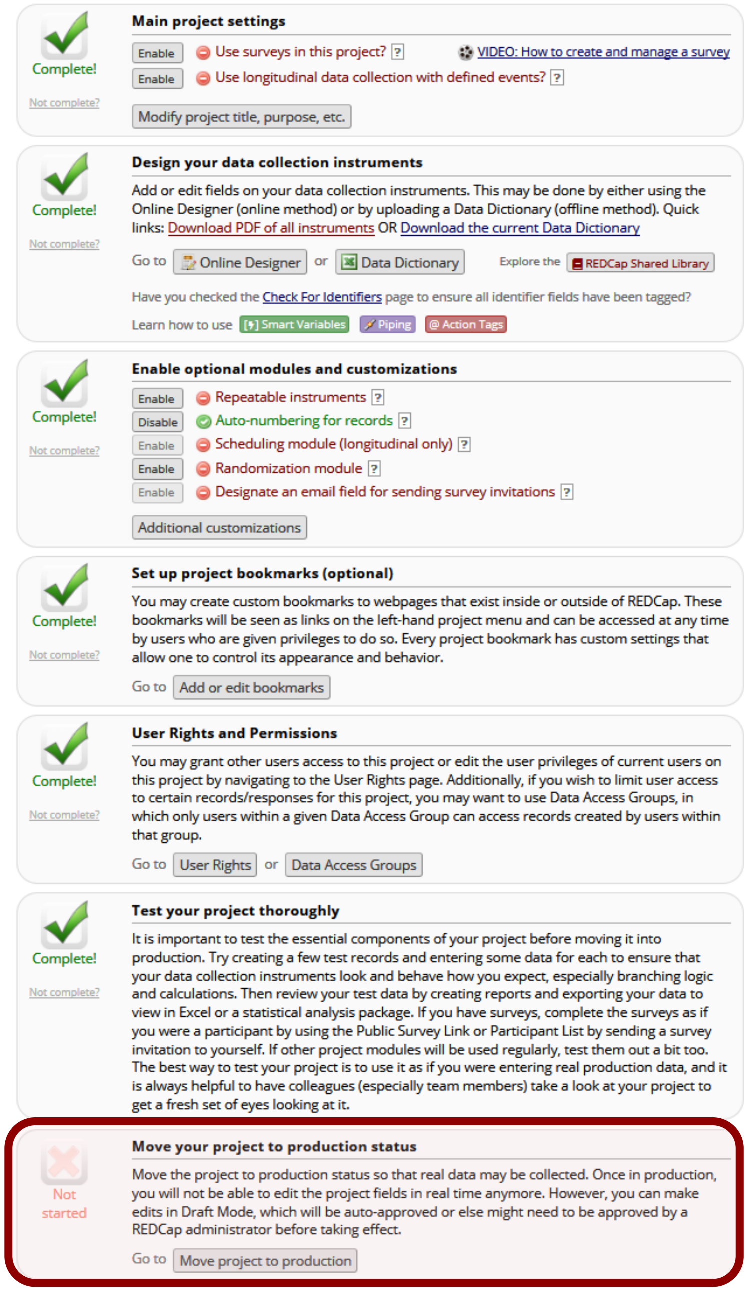


STEP 6: TEST YOUR PROJECT



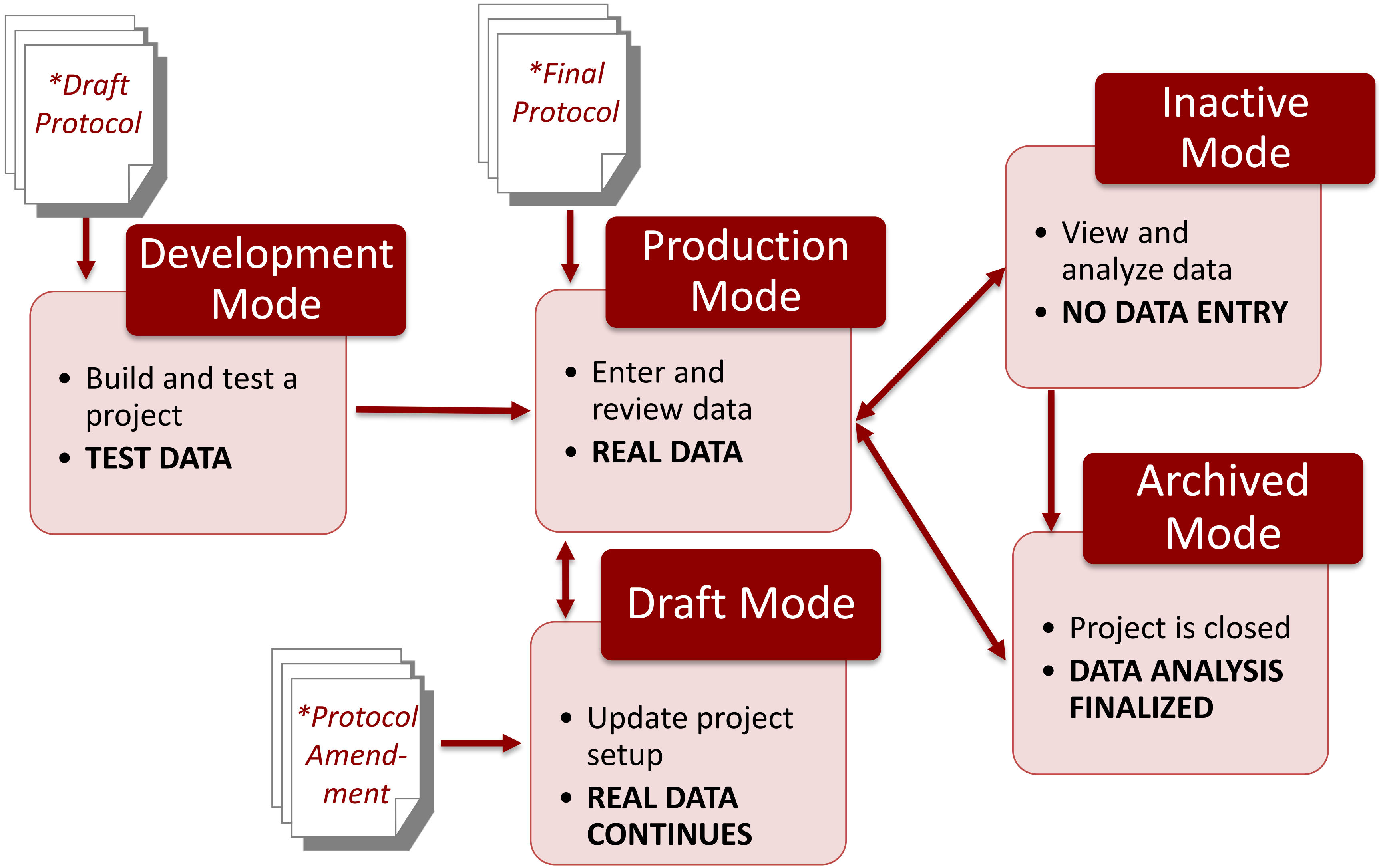
- Enter test records
- Test branching logic
- Test calculations
- Create reports
- Export test data
- Have colleagues review project as well

STEP 7: MOVE TO PRODUCTION



- Delete test data
- Wait for confirmation email from Administrator before collecting real data!

PROJECT TIMELINE AND MODES

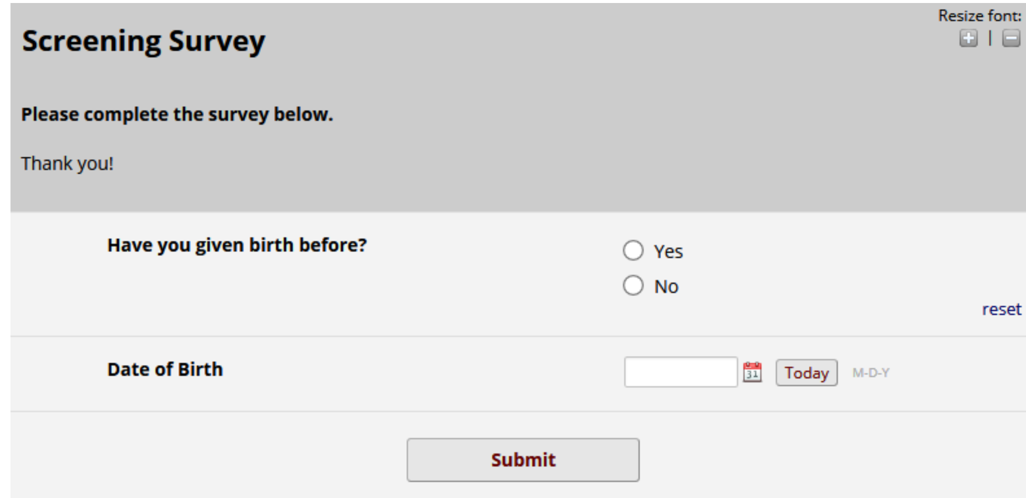


**if IRB approval required*

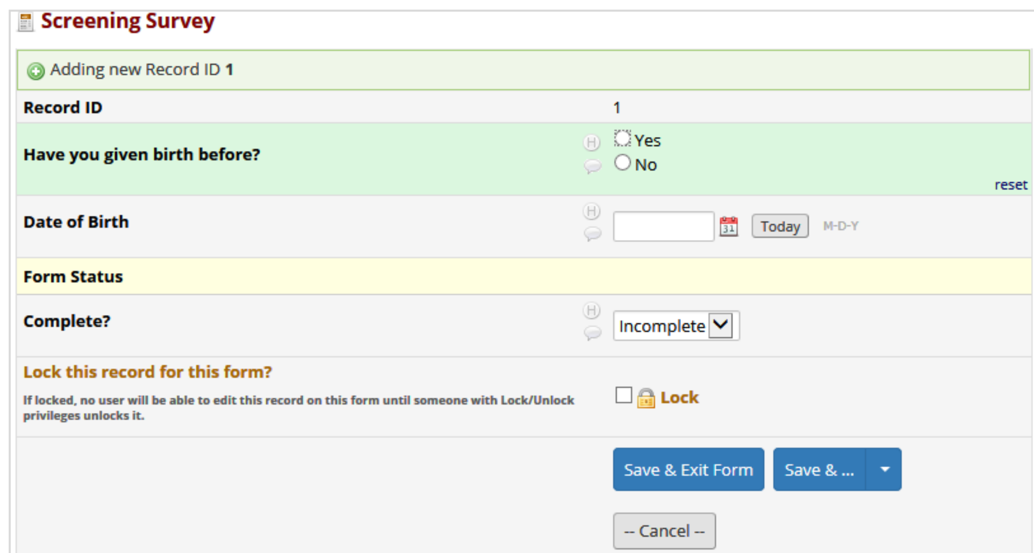
Using Surveys

WHAT IS A SURVEY?

A REDcap survey is a "public" version of a (form) instrument that is completed by a study participant without having to log into REDCap.

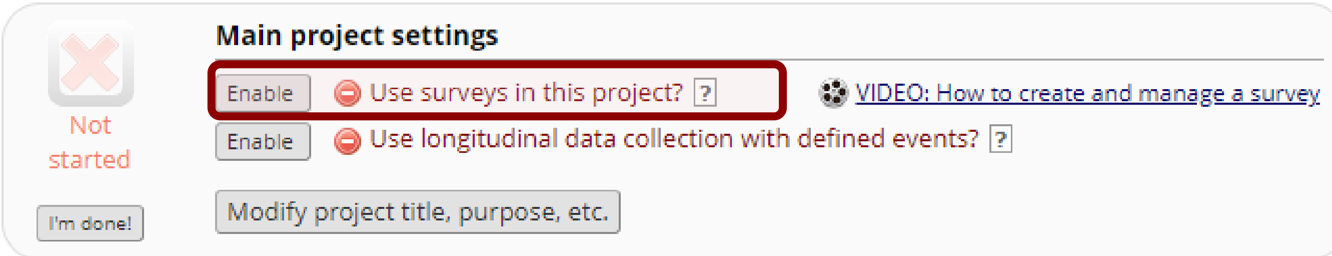


That same instrument can also be used by the study team as a data entry form when logged into REDCap.

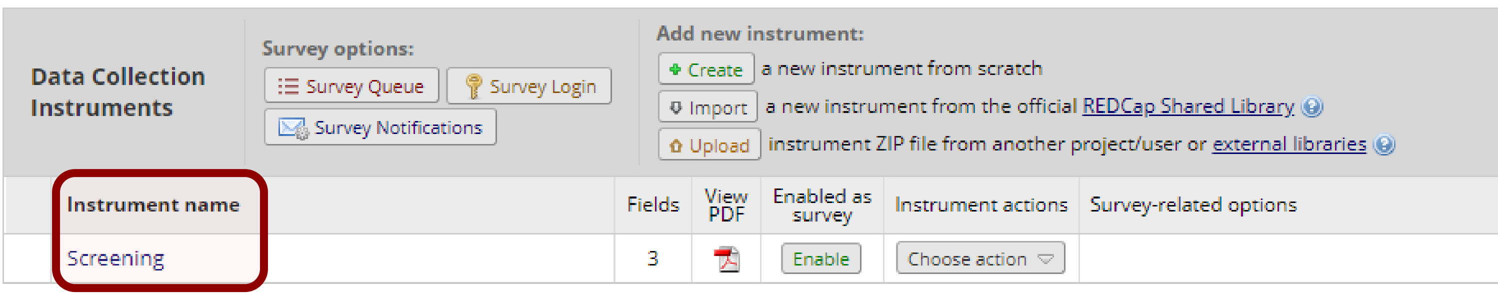


CREATING AND ENABLING A SURVEY

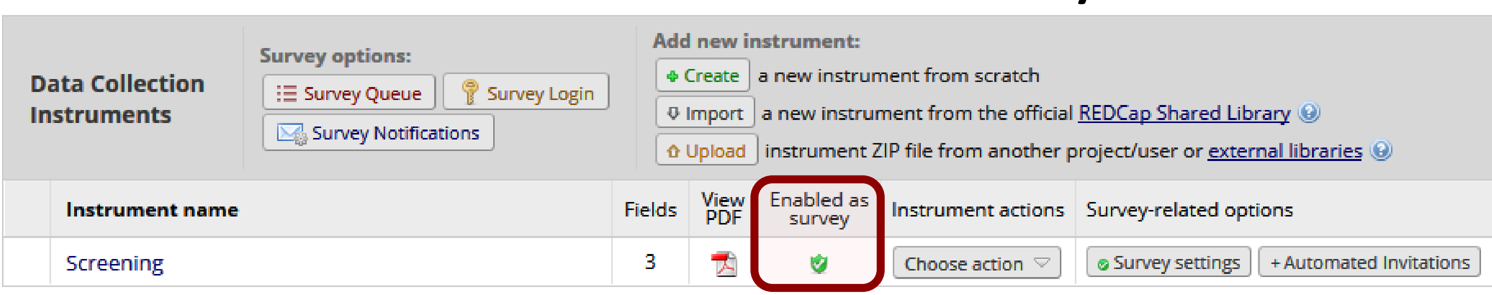
1. Enable the survey feature (Project Setup tab).



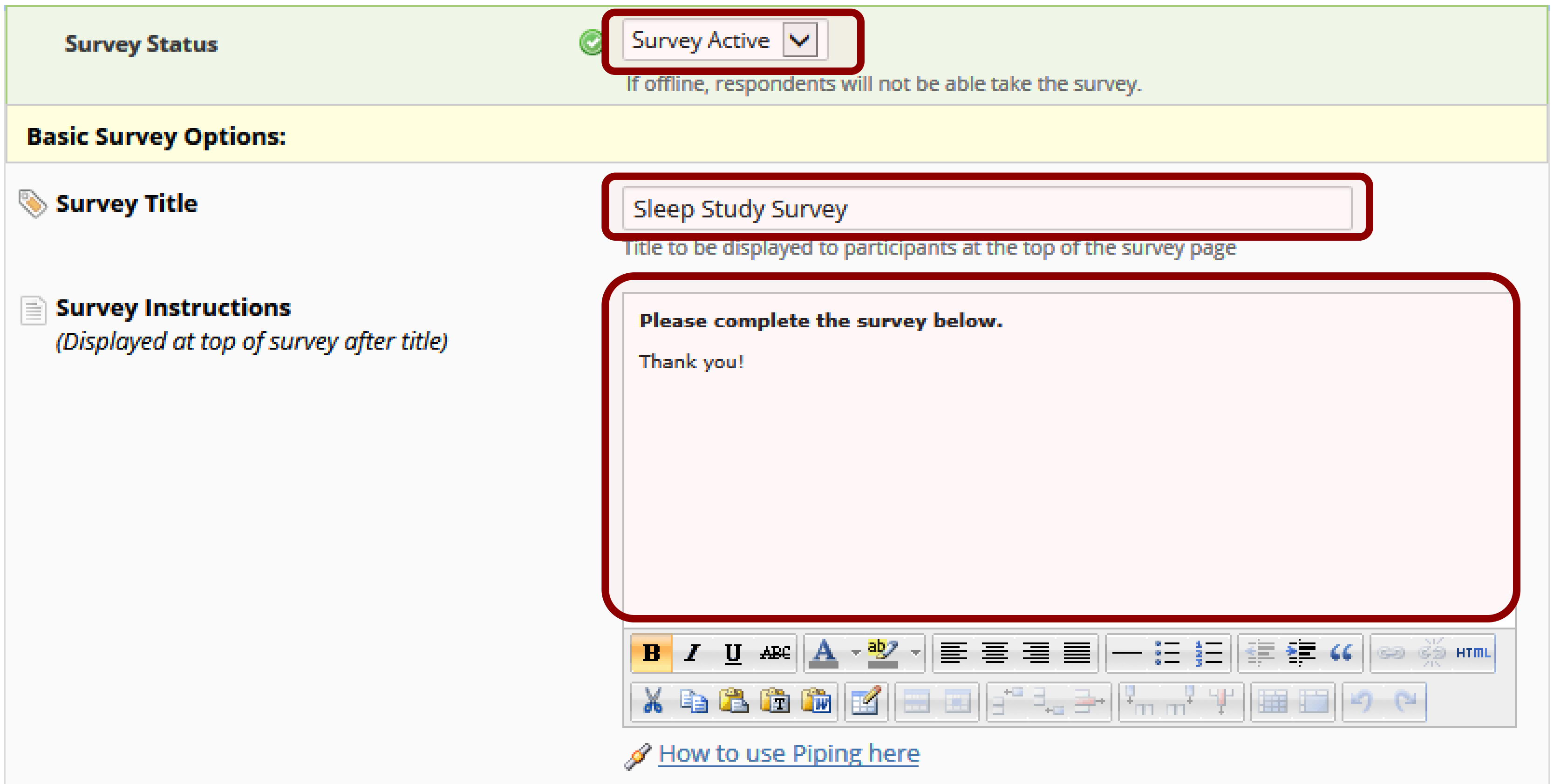
2. Create the instrument first.



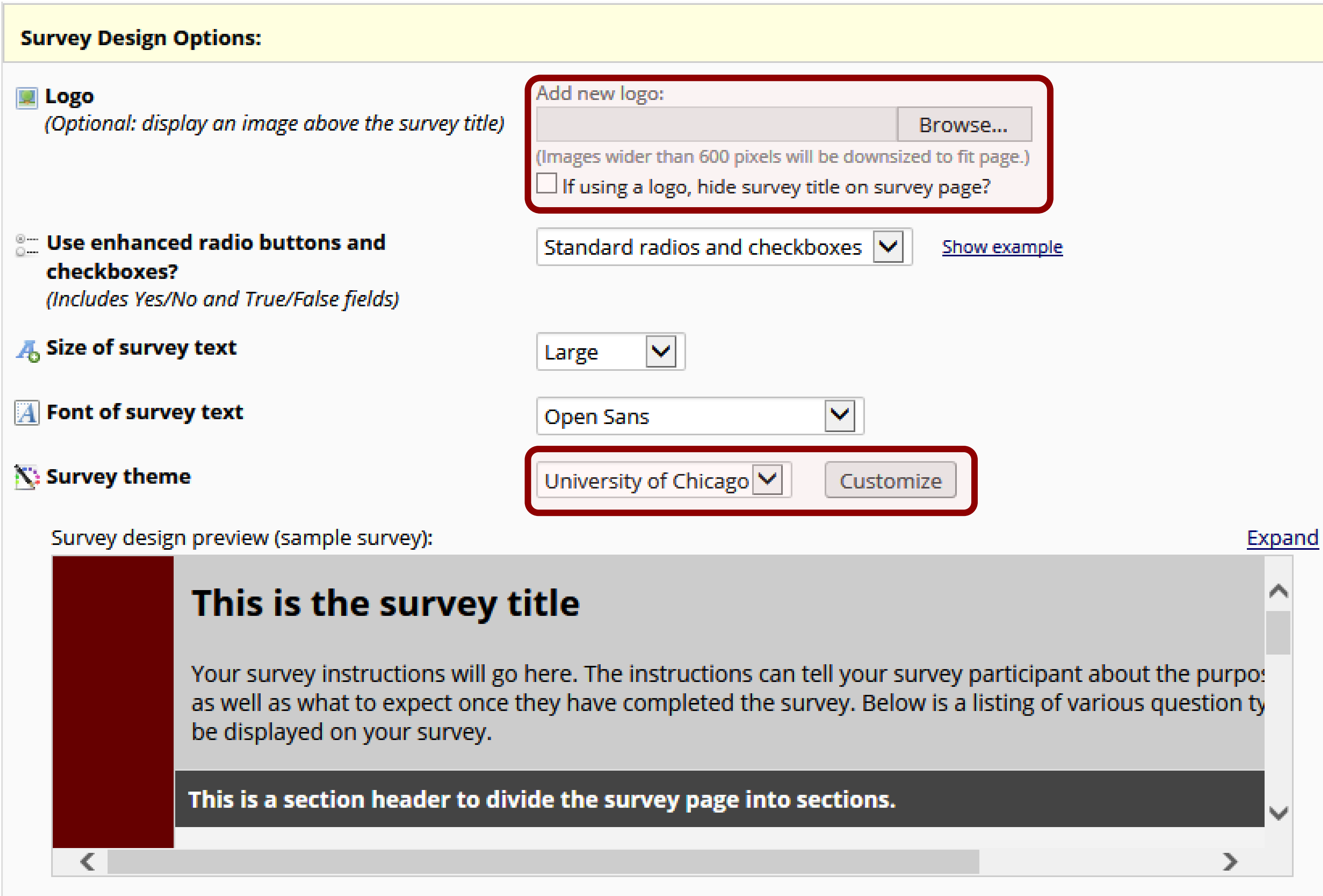
3. Enable the instrument as a survey.



SURVEY SETTINGS



SURVEY DESIGN OPTIONS



SURVEY CUSTOMIZATIONS

Survey Customizations:

Question Numbering

Custom numbered

Question numbers will not display correctly if using auto numbering if some questions have branching logic employed. Question auto numbering has been automatically disabled because some of your survey questions use branching logic.

Question Display Format
(One page or multiple pages?)

All on one page

Display page numbers at top of survey page

Hide the 'Previous Page' button (i.e., Back button) on the survey page
(prevents respondents from going back to previous pages)

Allow participants to download a PDF of their responses at end of survey?
Display a button for the participant to download a PDF file of their responses for the survey they just completed.

No

This option will not be available if the Survey Auto-continue or Survey Queue auto-start option is enabled. Also, if a field utilizes the @HIDDEN action tag, it will not be displayed in the PDF.

Survey-specific email invitation field
Designate an email field for sending survey invitations for this survey only ?

-- select a field --

Note: This option will override the project-level email invitation field (if enabled on the Project Setup page) and will also override any email address originally entered into the Participant List. Also, if this field has no value and the project-level email field is enabled, then the project-level email field's value will be used instead.

For 'Required' fields, display the red 'must provide value' text on the survey page?

Yes

If 'No', then it will NOT display the following text beneath all 'Required' fields: * must provide value

Allow survey respondents to view aggregate survey results after completing the survey?
After completing the survey, participants can view ALL responses in aggregate graphical format and/or as descriptive statistics. Also, the individual respondent's answers will be highlighted in the results.

Disabled

Additional settings:

10 Minimum number of responses required before participants are allowed to view aggregate data (recommended = 10).

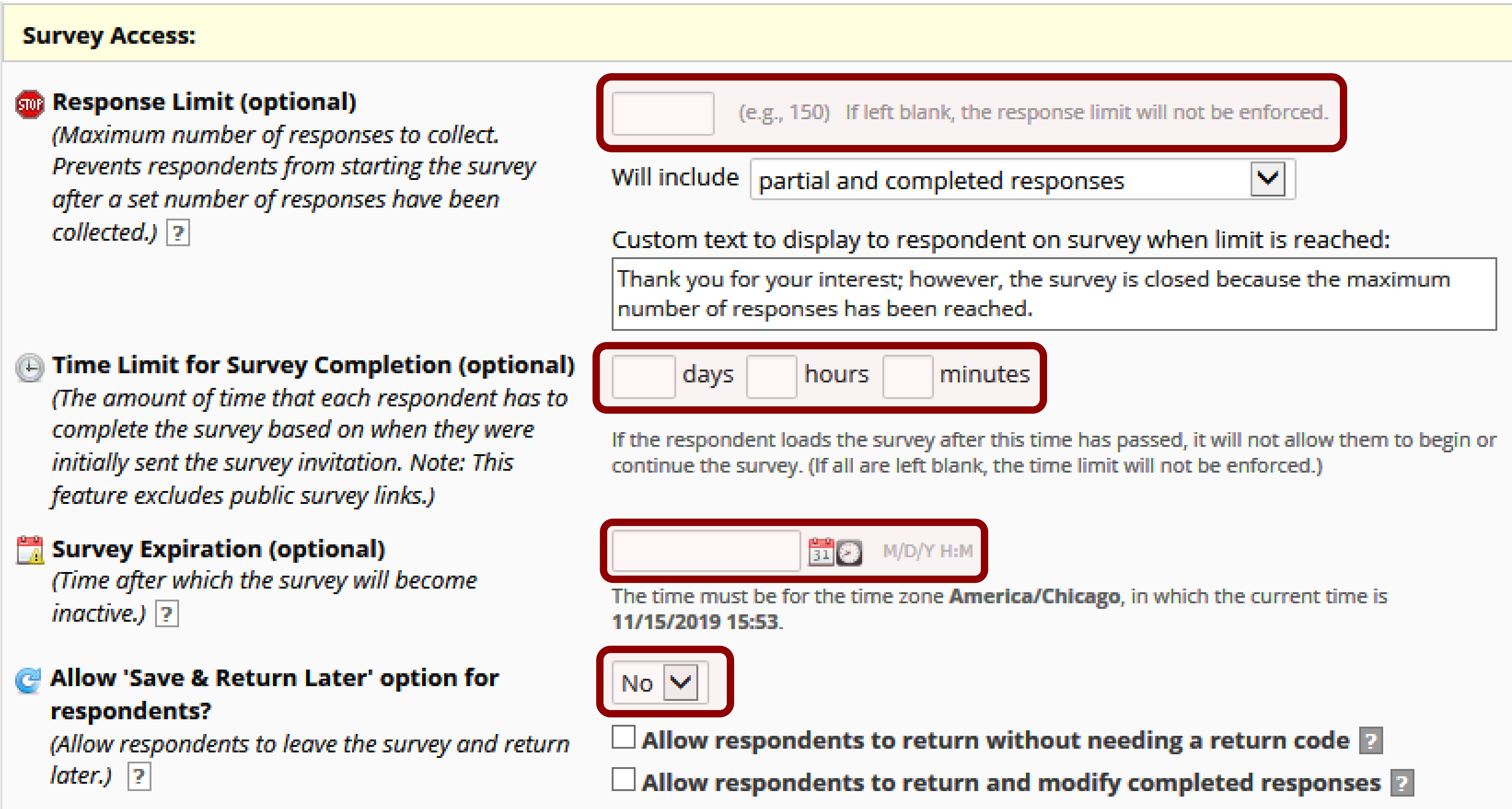
Do not show plots for questions lacking diversity in response values?
(What does this mean?)

Text-To-Speech functionality
(Allows text on survey page to be read audibly to participants.)
When enabled, icons will be displayed next to all text on the survey page, and when clicked, the text will be read out loud to the participant (must have computer speakers turned on).

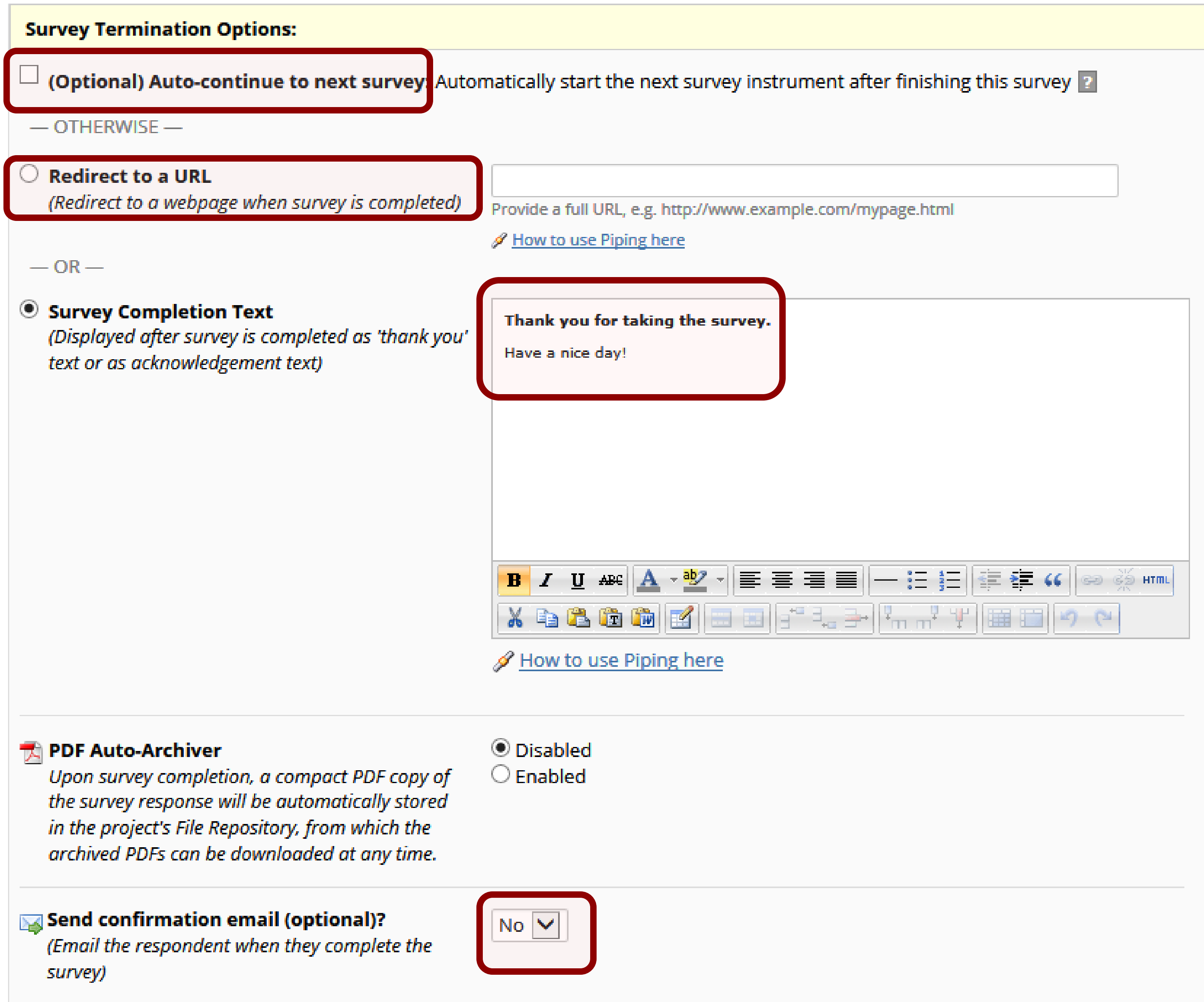
Disabled

NOTICE: All text that is spoken is sent to a service hosted at Vanderbilt University that utilizes the IBM Watson Text-to-Speech API service. Be advised that if the survey utilizes piping, for privacy concerns, data piped from Identifier fields will *not* be sent to the service with the rest of the text but will instead be redacted.
Administrators: How to disable this feature

SURVEY ACCESS

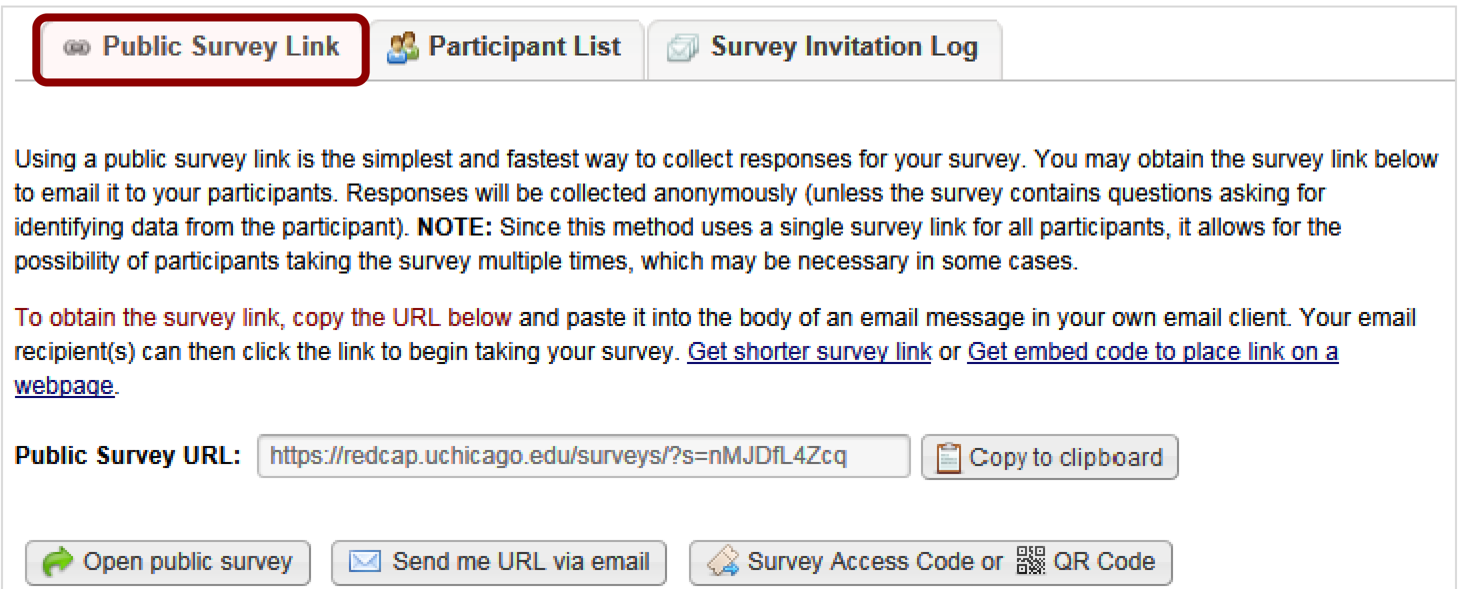


SURVEY TERMINATION OPTIONS



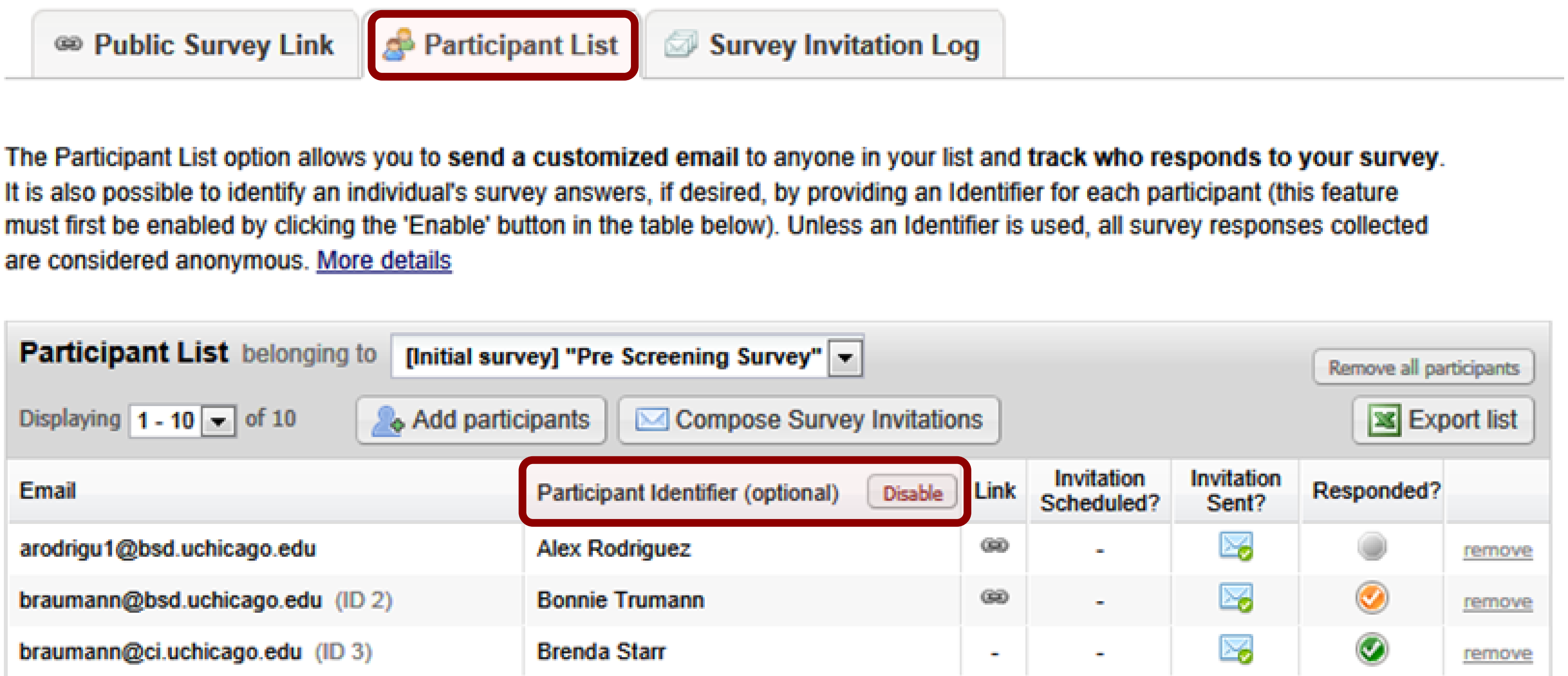
PUBLIC SURVEY LINK

The **Public Survey Link** is the simplest and fastest way to distribute a survey. The link can be published on a webpage, social media platforms, flyers, or sent in an email to a large group.



PARTICIPANT LIST

The **Participant List** allows for emailing the survey to your participants. It helps keep track of responses and non-responses.

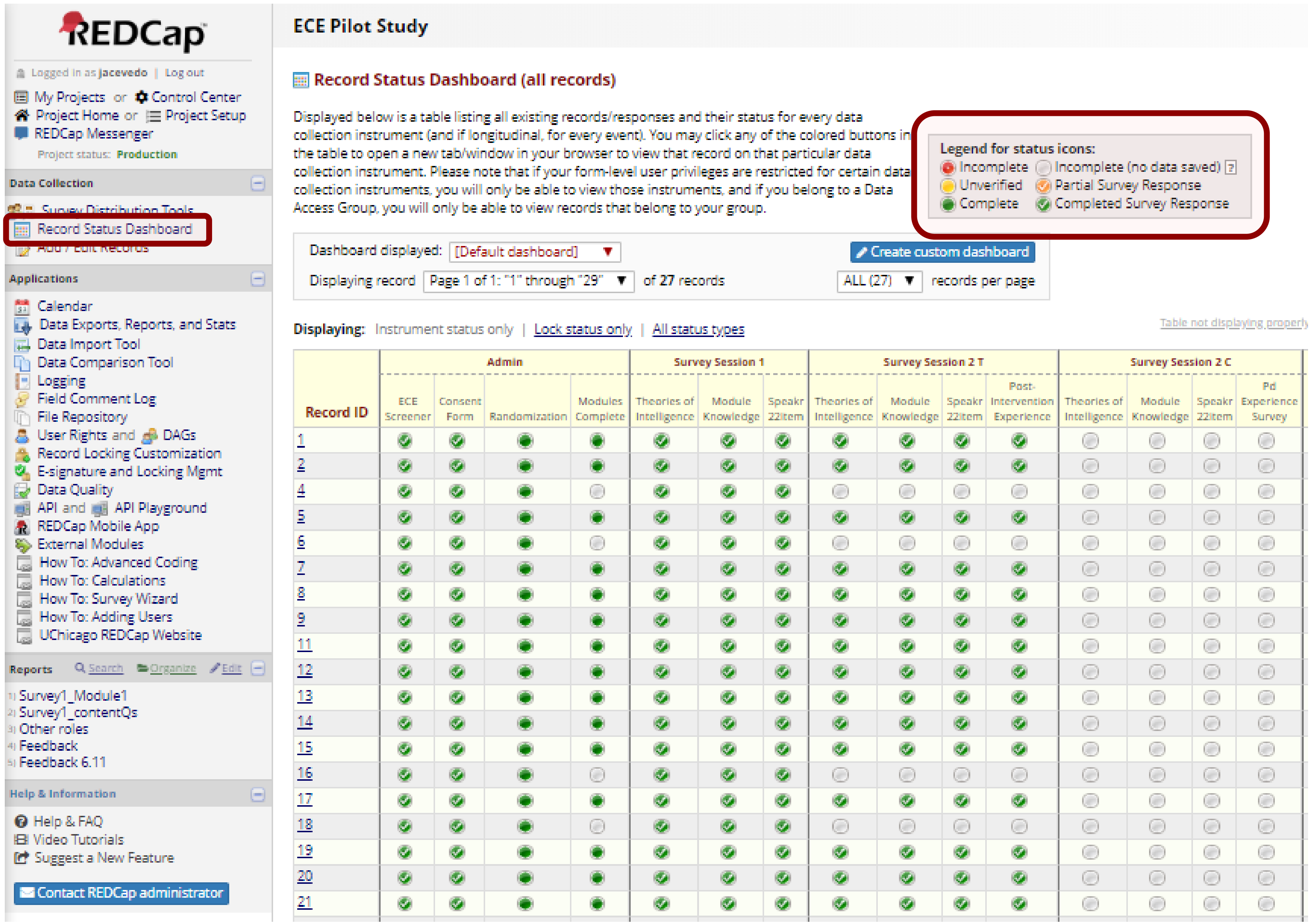


TESTING IS CRITICAL!

- **Send** yourself the survey just as you would sent it to your participants.
- Make sure all the **settings** and **format** are correct.
- Export the test data to preview your **data analysis**, and modify the survey questions if needed.
- Once testing is complete, request the project be moved to **production**.
- **DO NOT SEND SURVEY EMAILS UNTIL PROJECT HAS BEEN MOVED TO PRODUCTION!**

Applications & Tools

RECORD STATUS DASHBOARD



PROJECT CHANGE LOG

REDCap

Logged in as jacevedo | Log out

My Projects or Control Center
Project Home or Project Setup
REDCap Messenger
Project status: Development

Data Collection Edit instruments

- 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

- 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
- External Modules
- How To: Advanced Coding
- How To: Calculations
- How To: Survey Wizard
- How To: Adding Users
- UChicago REDCap Website

Help & Information

- Help & FAQ
- Video Tutorials
- Suggest a New Feature

Contact REDCap administrator

Training Project

Logging

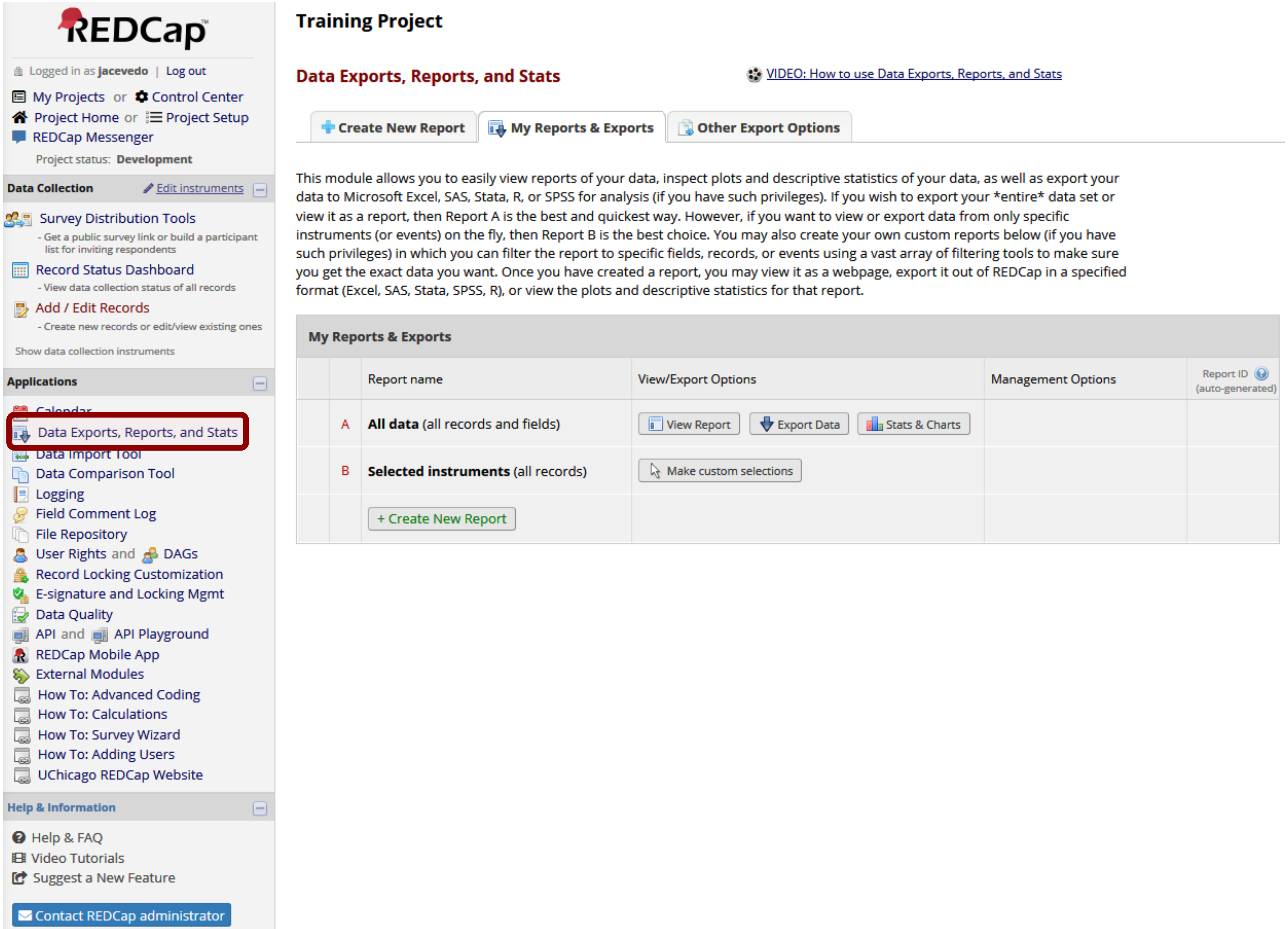
Download entire logging record to Microsoft Excel (CSV)

This module lists all changes made to this project, including data exports, data changes, and the creation or deletion of users.

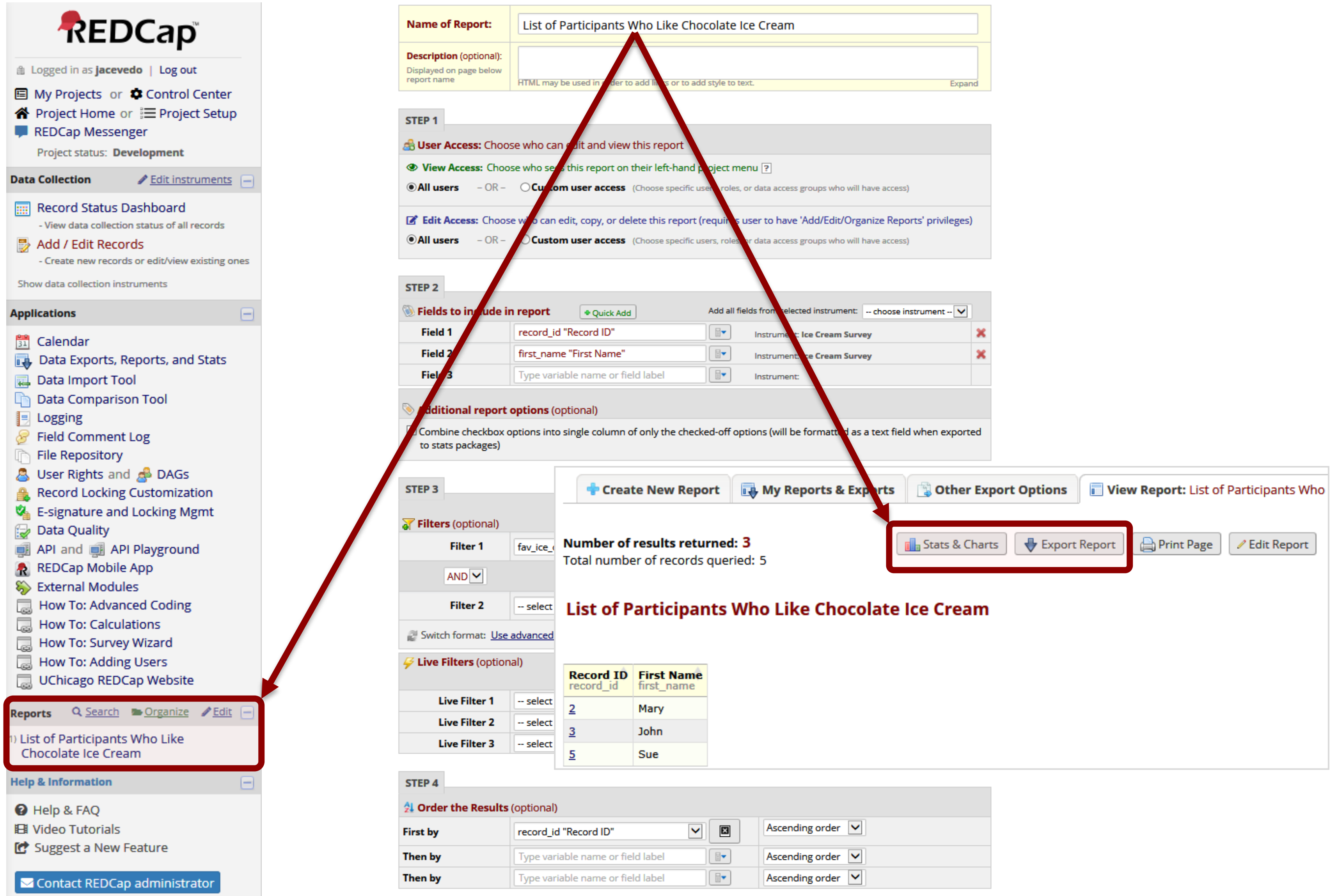
Filter by event: All event types (excluding page views)
Filter by user name: All users
Filter by record: All records
Filter by time range from ___ to ___
Displaying events (by most recent): 1 - 100 (Page 1 of 4)

Time / Date	Username	Action	List of Data Changes OR Fields Exported
07/10/2019 6:55pm	jacevedo	Manage/Design	Modify project settings
07/10/2019 6:55pm	jacevedo	Updated Record 1002	test_complete = '2'
07/10/2019 6:54pm	jacevedo	Updated Record 1001	test_complete = '2'
07/10/2019 6:54pm	jacevedo	Deleted Record 999	record_id = '999'
06/10/2019 4:33pm	[survey respondent]	Created Response 1004	mon = '1', tue = '1', wed = '1', thu = '1', fri = '1', record_id = '1004', test_complete = '0'
06/10/2019 4:32pm	jacevedo	Manage/Design	Modify survey info
06/10/2019 4:32pm	[survey respondent]	Created Response 1003	mon = '1', tue = '1', wed = '1', thu = '1', fri = '1', record_id = '1003', test_complete = '0'
06/10/2019 4:24pm	jacevedo	Manage/Design	Modify survey info
06/10/2019 4:23pm	[survey respondent]	Updated Response 1002	mon = '2'
06/10/2019 4:22pm	[survey respondent]	Created Response 1002	mon = '1', tue = '1', wed = '1',

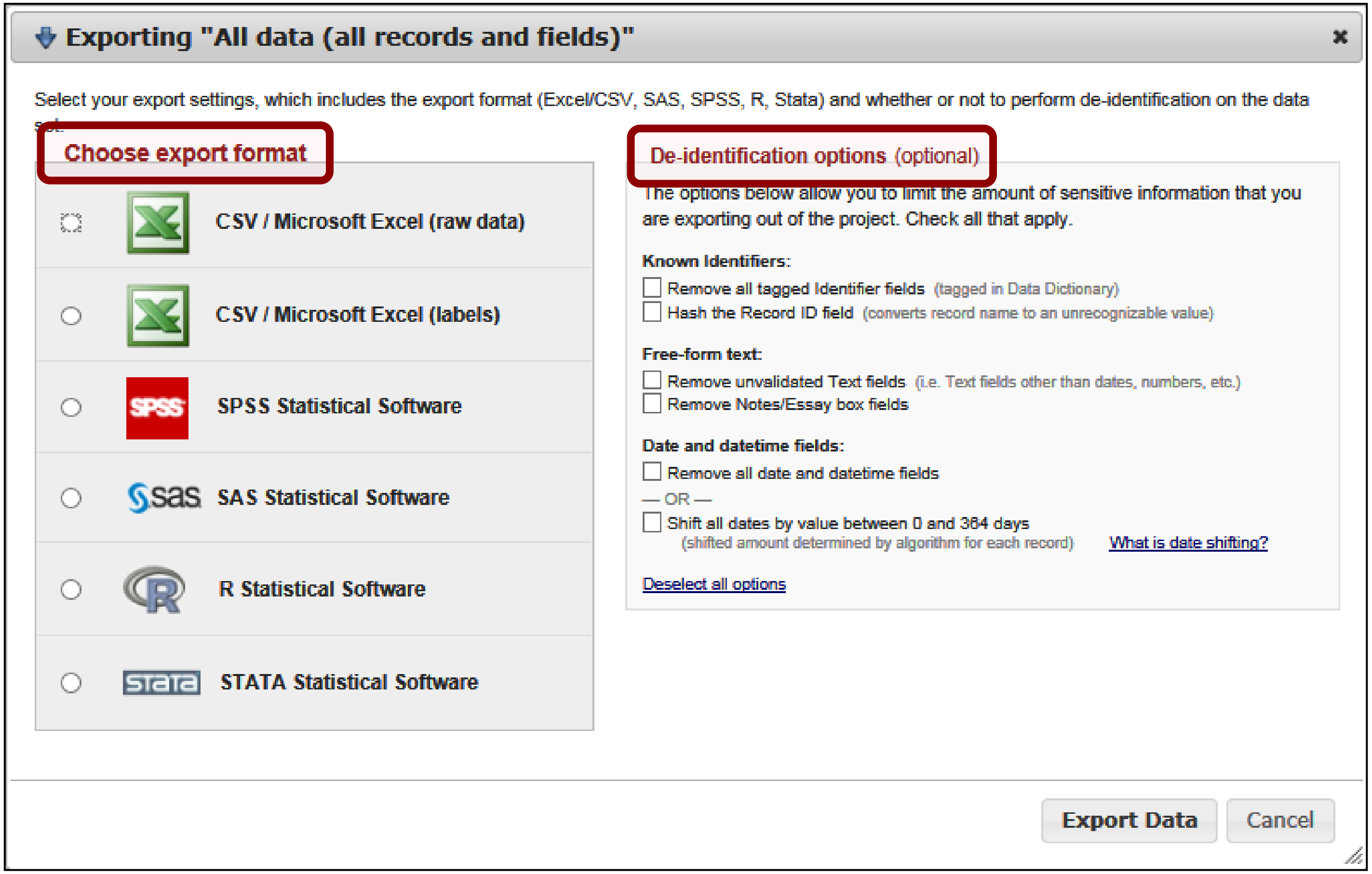
DATA EXPORTS, REPORTS, AND STATS



DATA EXPORTS, REPORTS, AND STATS



DATA EXPORTS, REPORTS, AND STATS

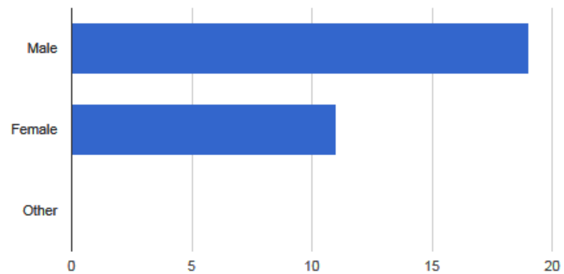


STATS AND CHARTS

Gender Refresh Plot | View as Bar Chart

Total Count (N)	Missing	Unique
30	0 (0.0%)	2

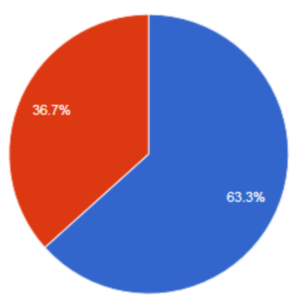
Counts/frequency: Male (19, 63.3%), Female (11, 36.7%), Other (0, 0.0%)



Gender Refresh Plot | View as Pie Chart

Total Count (N)	Missing	Unique
30	0 (0.0%)	2

Counts/frequency: Male (19, 63.3%), Female (11, 36.7%), Other (0, 0.0%)



height < 150

DISPLAY OPTIONS

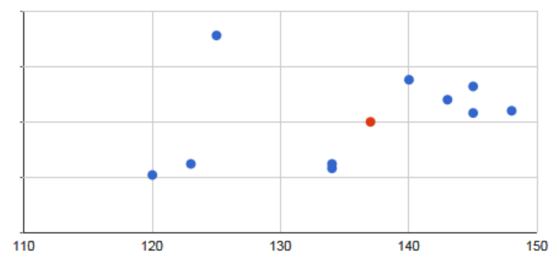
Optional: Select a record to overlay onto the plots below -- select record --

Viewing options: Show plots & stats | Show plots only | Show stats only

Height Refresh Plot

Total Count (N)	Missing	Unique	Min	Max	Mean	StDev	Sum	Percentile						
								0.05	0.10	0.25	0.50 Median	0.75	0.90	0.95
10	0 (0.0%)	8	120.00	148.00	135.70	10.13	1,357.00	121.35	122.70	127.25	137.00	144.50	145.30	146.65

Lowest values: 120, 123, 125, 134, 134
Highest values: 140, 143, 145, 145, 148



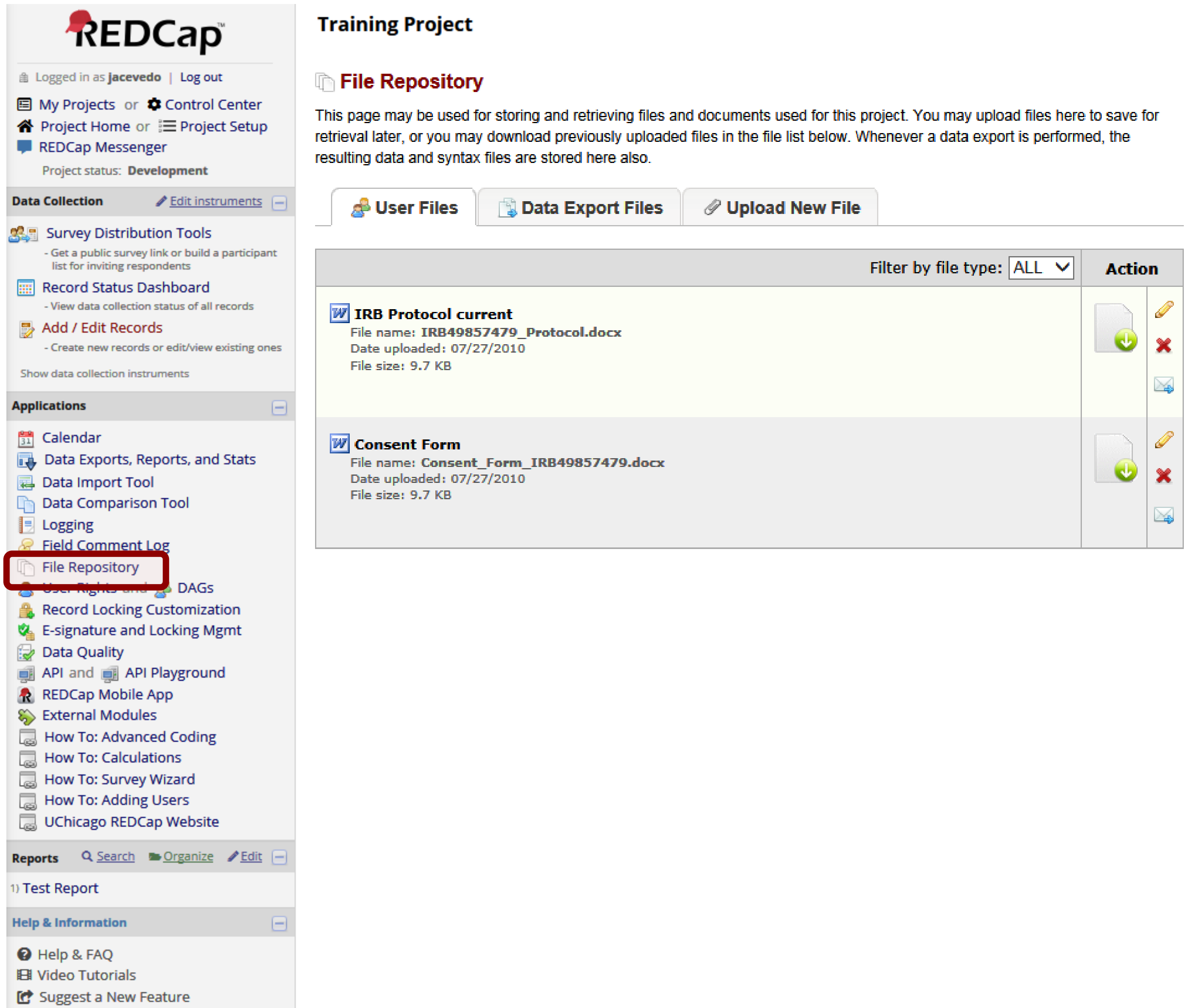
DATA DICTIONARY CODEBOOK

Print page

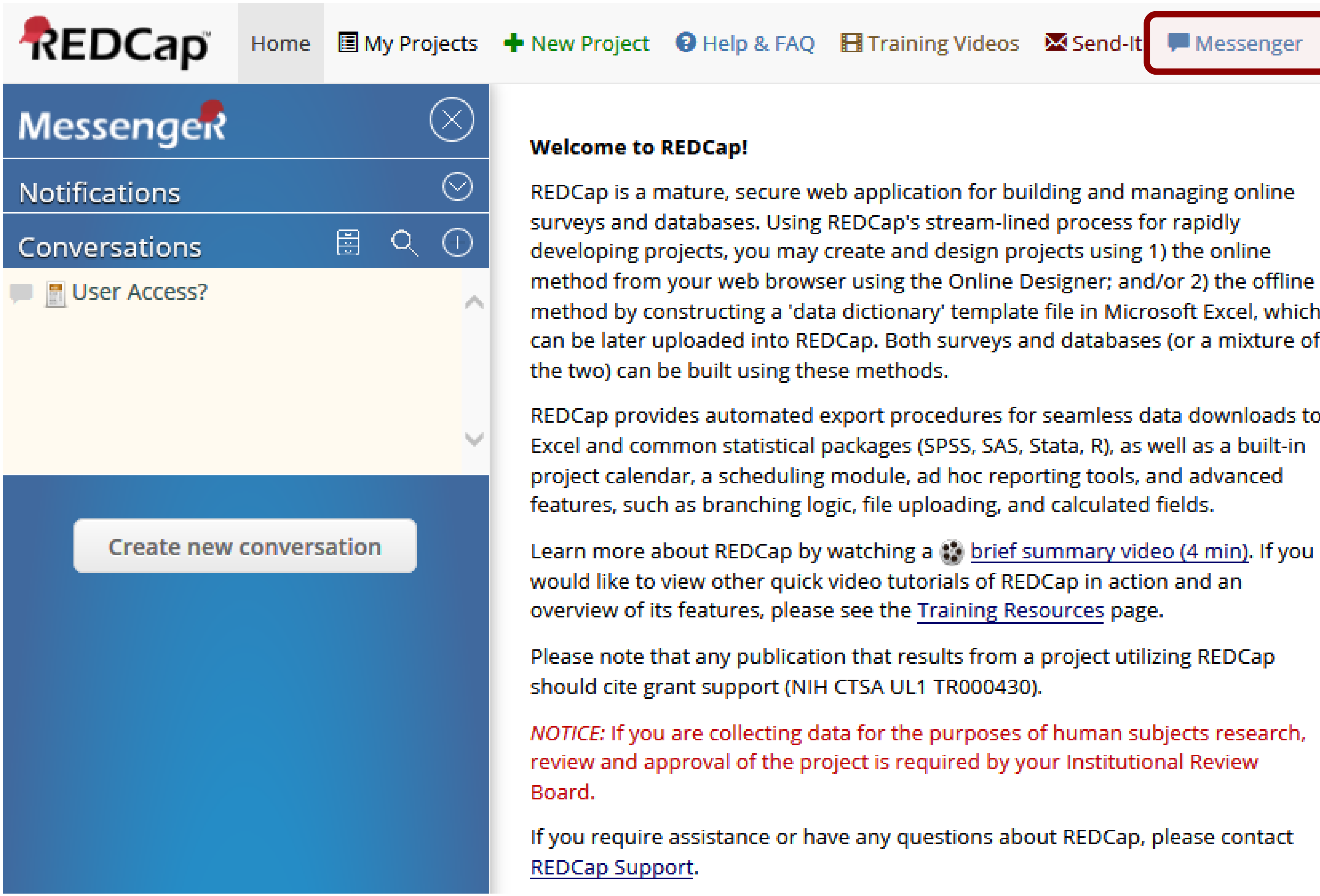
Data Dictionary Codebook

#	Variable / Field Name	Field Label *Field Note*	Field Attributes (Field Type, Validation, Choices, Calculations, etc.)
Instrument: **Screening** (screening)			
1	study_id	Study ID	text
2	date_enrolled	Section Header: *Consent Information* Date subject signed consent *YYYY-MM-DD*	text (date_ymd)
3	patient_document	Upload the patient's consent form	file
4	first_name	Section Header: *Contact Information* First Name	text, Identifier
5	last_name	Last Name	text, Identifier
6	address	Street, City, State, ZIP	notes, Identifier
7	telephone	Phone number *Include Area Code*	text (phone), Identifier
8	email	E-mail	text (email), Identifier
9	dob	Section Header: *Demographics* Date of birth	text (date_ymd), Identifier
10	age	Age (years)	calc Calculation: rounddown(datediff([dob],'today','y'))
11	ethnicity	Ethnicity	radio 0 Hispanic or Latino 1 NOT Hispanic or Latino 2 Unknown / Not Reported Custom alignment: LH
12	race	Race	dropdown 0 American Indian/Alaska Native 1 Asian 2 Native Hawaiian or Other Pacific Islander 3 Black or African American 4 White 5 More Than One Race 6 Unknown / Not Reported

FILE REPOSITORY



REDCap MESSENGER



SMART DEVICES

REDCap is compatible with:

- Tablets and smart phone (iOS and Android)
- imply go to https://redcap.uchicago.edu/

MOBILE APP

Use for offline data collection

(where there is no/poor internet connectivity)

REDCap

App Store

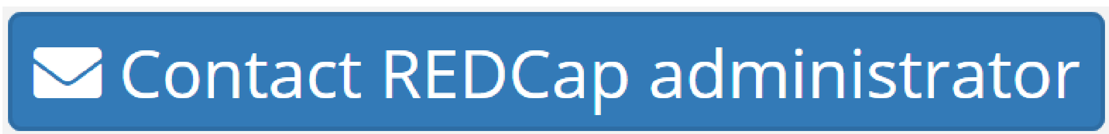
Google play

Live Demo

Help Resources

HELP RESOURCES

Inside of REDCap:



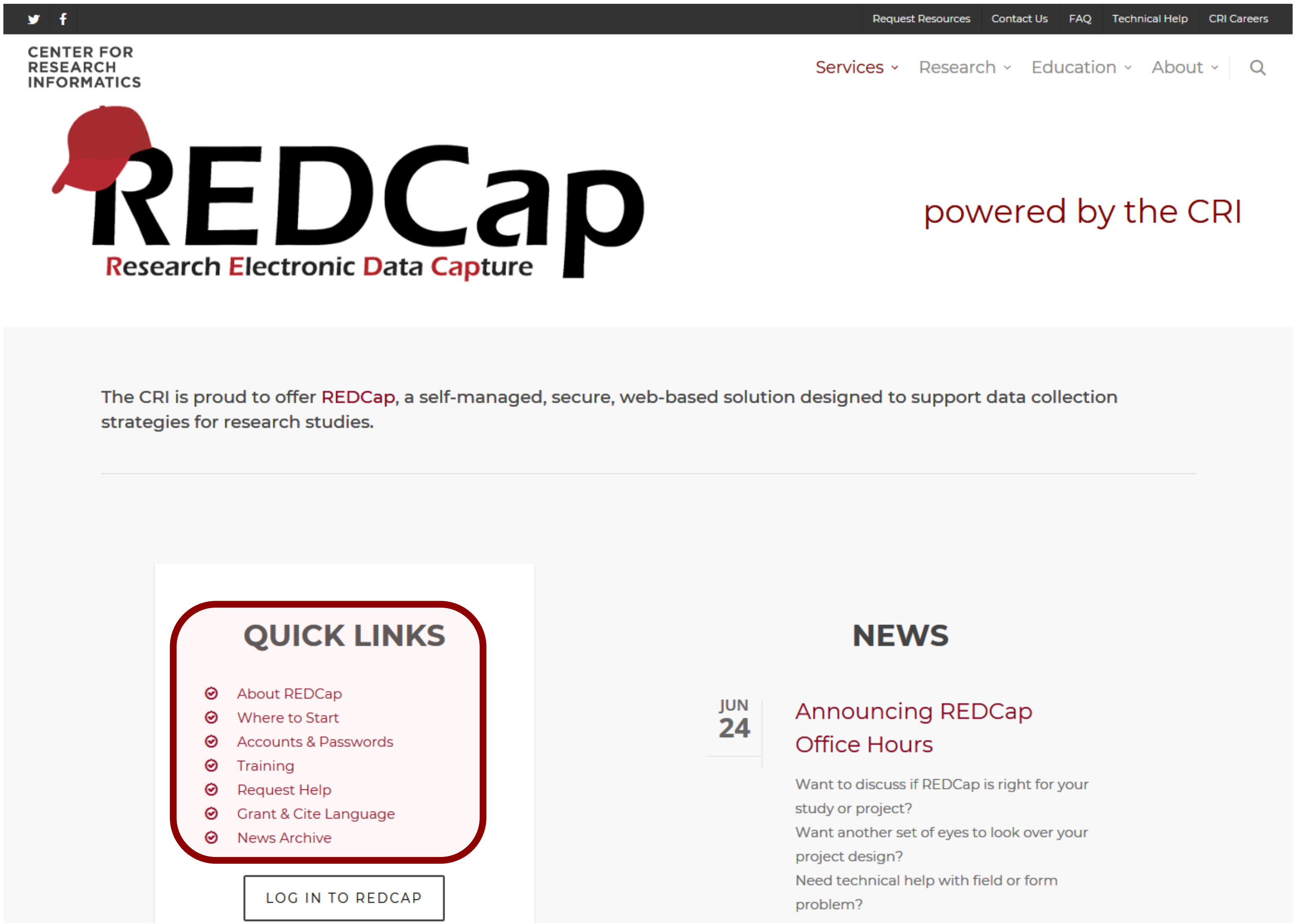
Outside of REDCap:

redcap@rt.cri.chicago.edu

https://cri.uchicago.edu/redcap

ADDITIONAL HELP

http://cri.uchicago.edu/redcap/



FUTURE SEMINARS

FEBRUARY 20th

- Making the Most of REDCap: Beyond Basic Skills

APRIL 14th

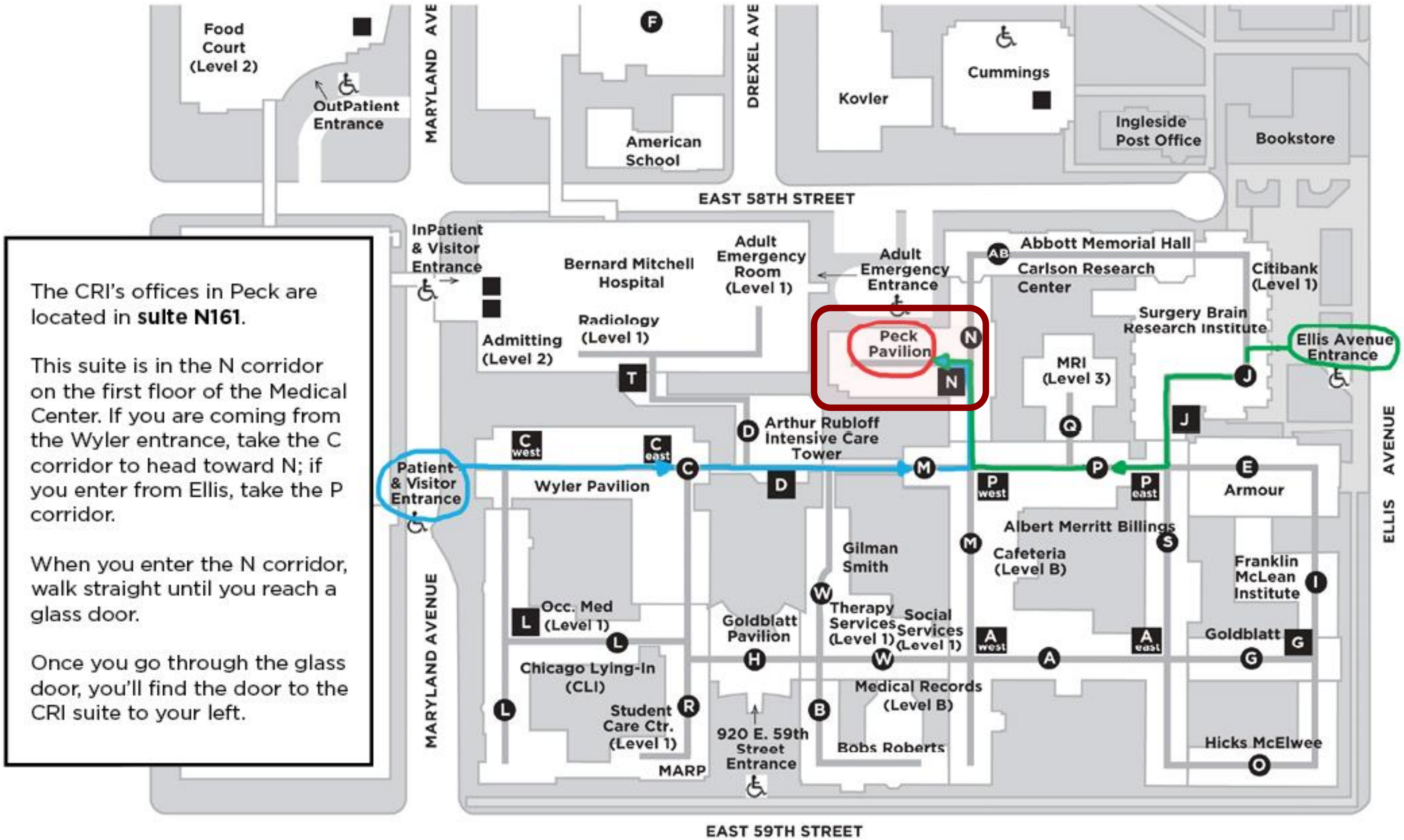
- Making the Most of REDCap: All About Surveys

REGISTER

- https://cri.uchicago.edu/seminar-series/

OFFICE HOURS

Wednesdays, 12-3pm, N161, redcap@rt.cri.uchicago.edu



THANK YOU!

REDCap

Research Electronic Data Capture

THE UNIVERSITY OF CHICAGO MEDICINE & BIOLOGICAL SCIENCES

CENTER FOR RESEARCH INFORMATICS

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