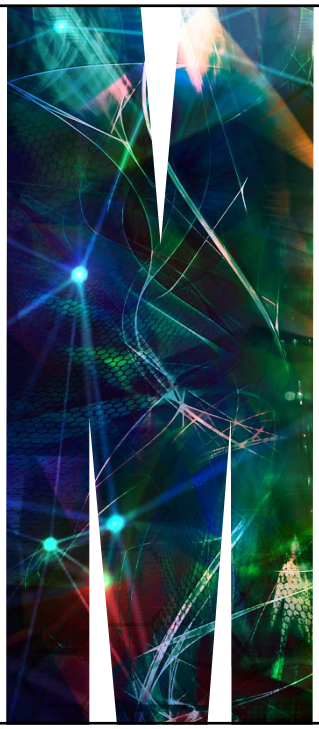
MONASH University

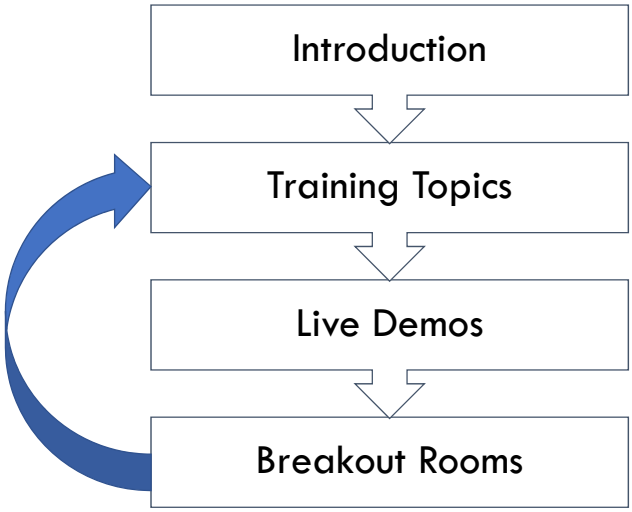
Introduction to REDCap™



David Brown
Data Manager – Hazelwood Health Study
Hazelwoodhealthstudy.org.au

31 Aug 2020

Course Approach



MONASH University

REDCap Introduction

MONASH University

Who Created REDCap and Who Uses it?

THEN

2004: Developed at Vanderbilt Univ.

2006: Global consortium started

2014: Monash joined

NOW

Worldwide: (Aug 2020)

+4456 institutions /138 countries

+983,000 projects

+1,400,000 users

REDCap @ Monash:

+680 projects

+3500 users

MONASH University

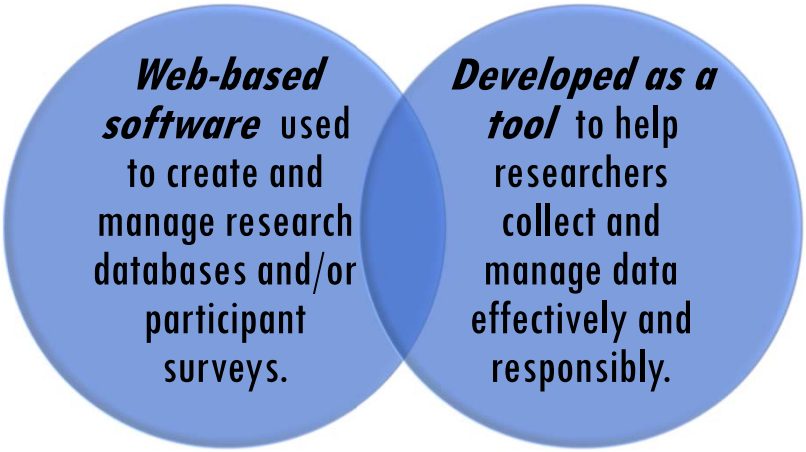
REDCap Project Request

Monash University Research
The P.I. must be from Monash University
https://redcap.link/monashredcap

Monash Health Translation Precinct (MHTP) Research
The P.I. must be from MHTP, Hudson or Monash University
https://is.gd/mhtpredcap

MONASH University

What is REDCap?



MONASH University

Advantages of REDCap

Accessible

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

Customisable

- fast and flexible to design
- modifications at anytime

Accurate

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

Secure

- Data are stored in a secured area
- Daily backup and software upgrades

Supported

- includes user group, training, design guidance, troubleshooting

MONASH University

Training Topics

Project Setup

- Main Project Settings
- Design your data instruments
- Enable modules and customisations
- User Rights and Permissions
- Testing your project
- Moving to production

Using Surveys

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

MONASH University

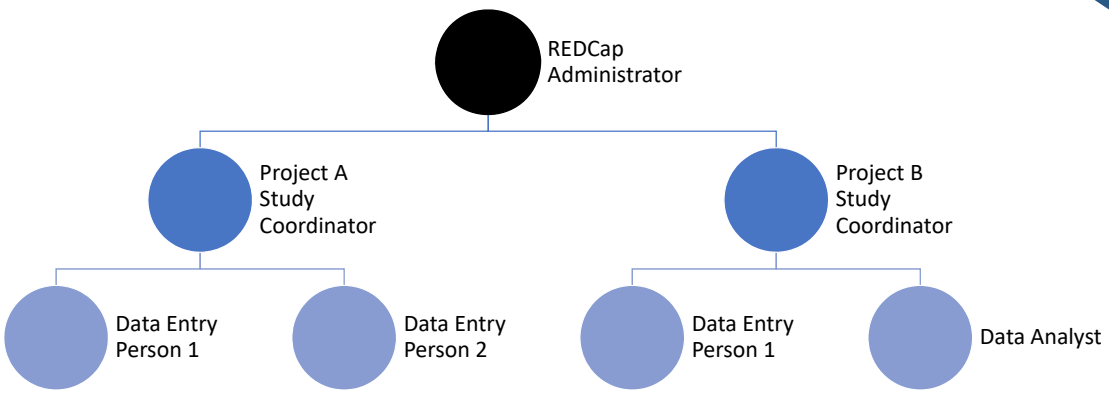
Training Topics

Applications & Tools

- Record status dashboard
- Project audit trail
- Field history
- Codebook
- Data export
- Data import
- Data quality

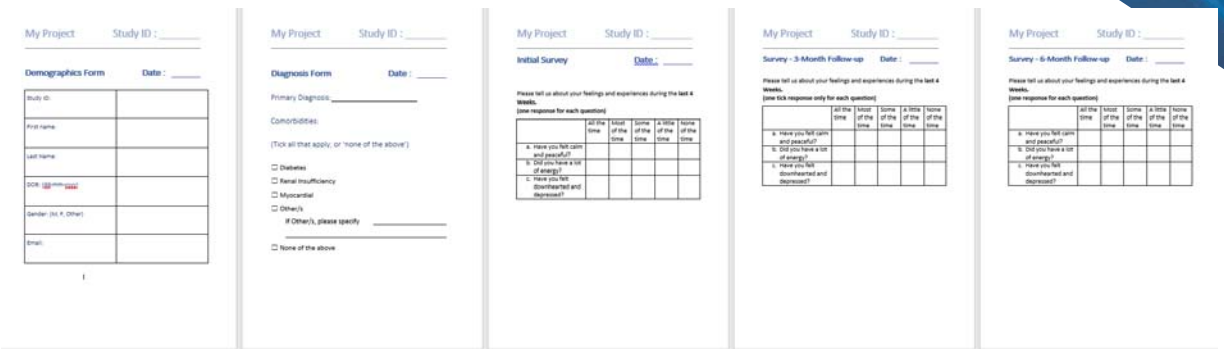
MONASH University

REDCap Users



MONASH University

Training project



MONASH University

Project Setup

MONASH University

Logging on to training System

https://redcap-training.helix.monash.edu/

Your user name is:

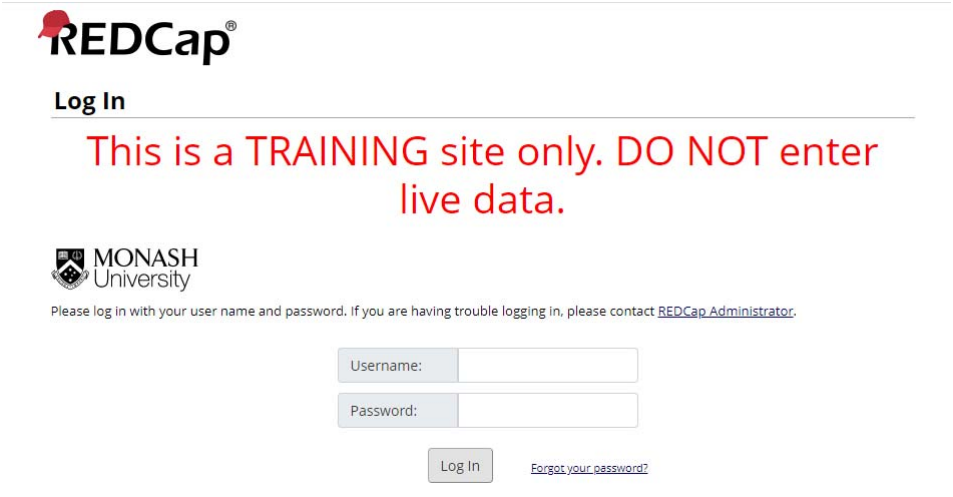
Your allocated number from the google registration sheet.
Eg. traininguser01, traininguser24

Your password for today is:

20200831

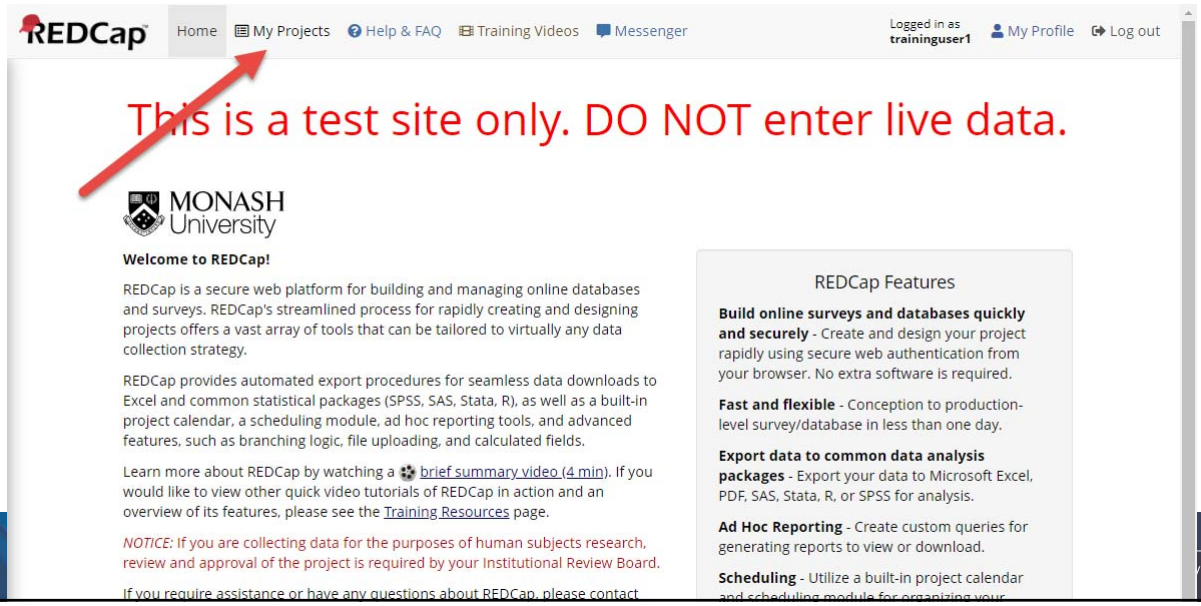
MONASH University

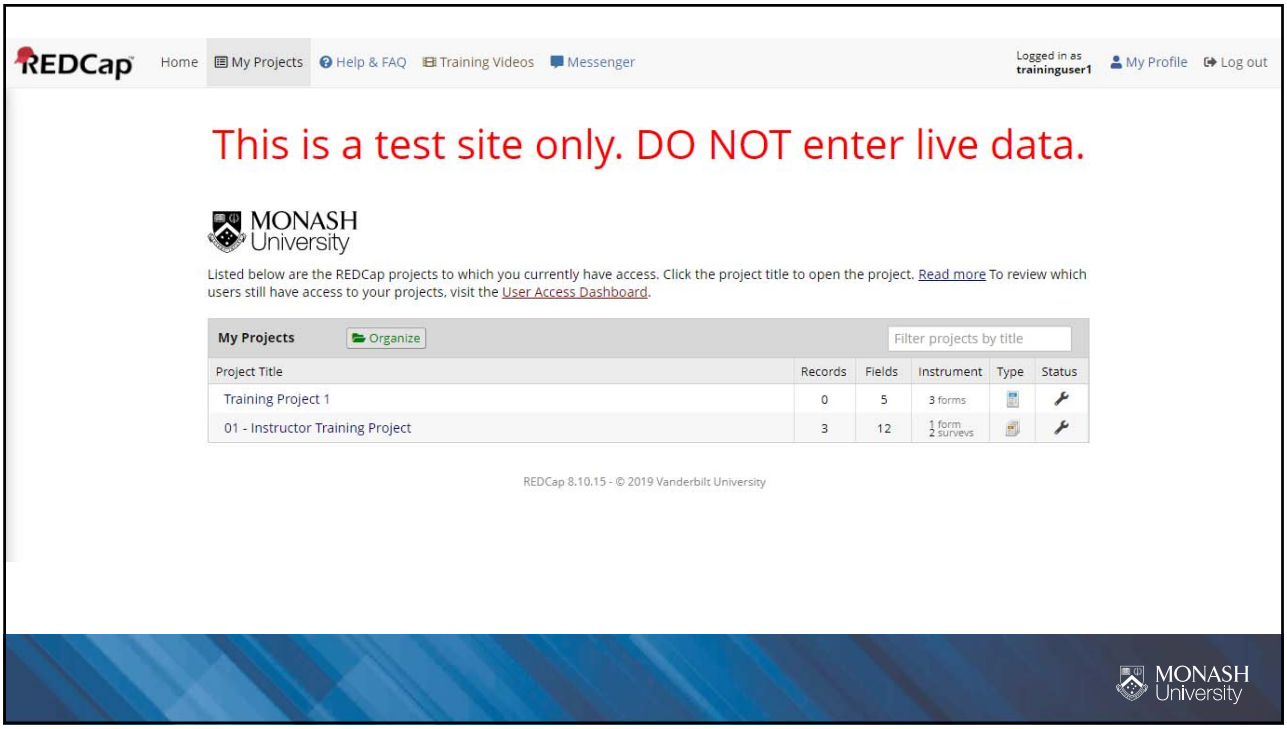
REDCap Access: https://redcap-training.helix.monash.edu/

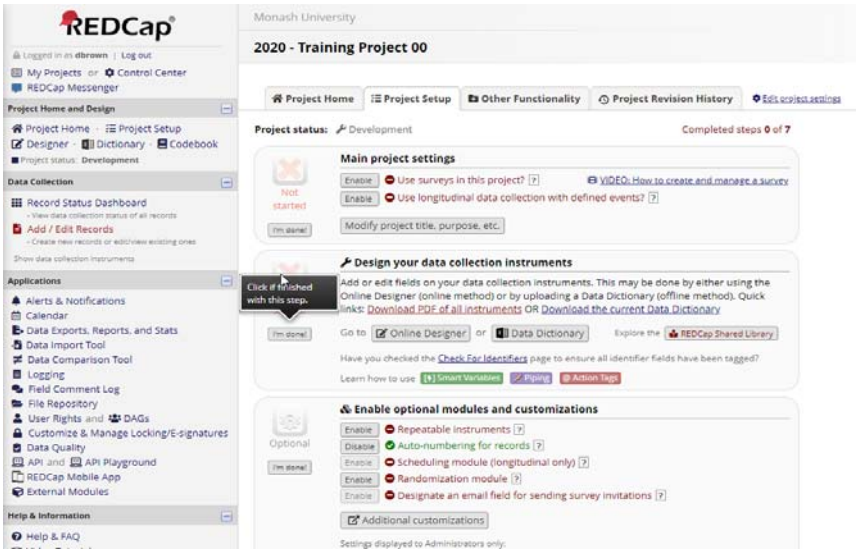


MONASH University

My Projects

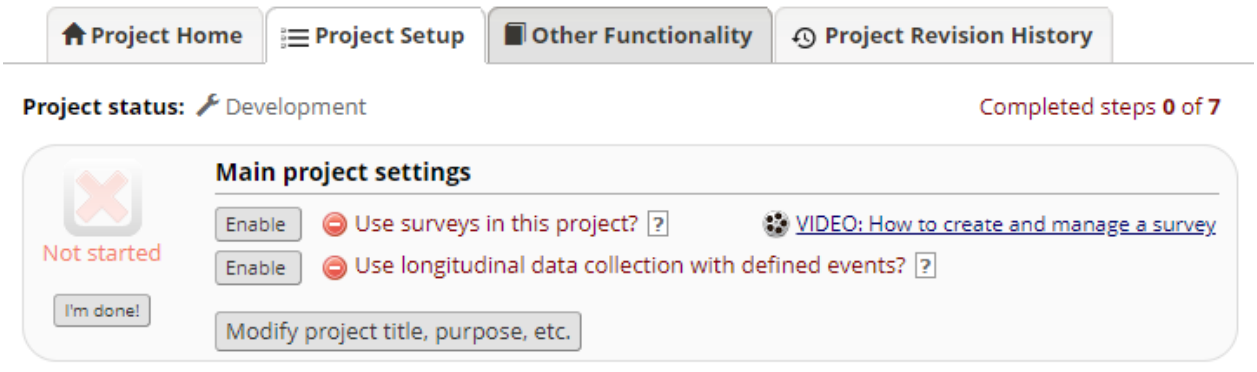

REDCap
Home
My Projects
Help & FAQ
Training Videos
Messenger
Logged in as traininguser1
My Profile
Log out
This is a test site only. DO NOT enter live data.
MONASH University
Welcome to REDCap!
REDCap is a secure web platform for building and managing online databases and surveys. REDCap's streamlined process for rapidly creating and designing projects offers a vast array of tools that can be tailored to virtually any data collection strategy.
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.
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 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


REDCap
Home
My Projects
Help & FAQ
Training Videos
Messenger
Logged in as traininguser1
My Profile
Log out
This is a test site only. DO NOT enter live data.
MONASH University
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.
My Projects
Organize
Filter projects by title
Project Title
Records
Fields
Instrument
Type
Status
Training Project 1
0
5
3 forms
01 - Instructor Training Project
3
12
1 form 2 surveys
REDCap 8.10.15 - © 2019 Vanderbilt University
MONASH University



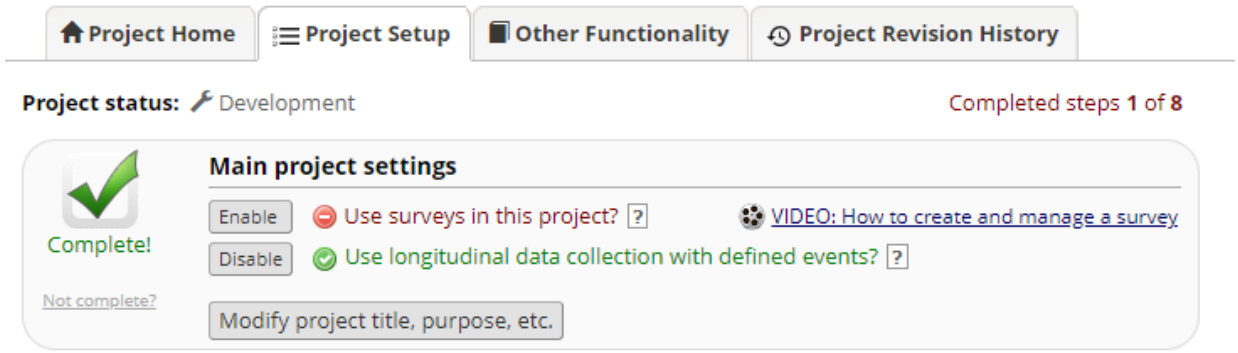
MONASH University

Step 1: Main Project Settings



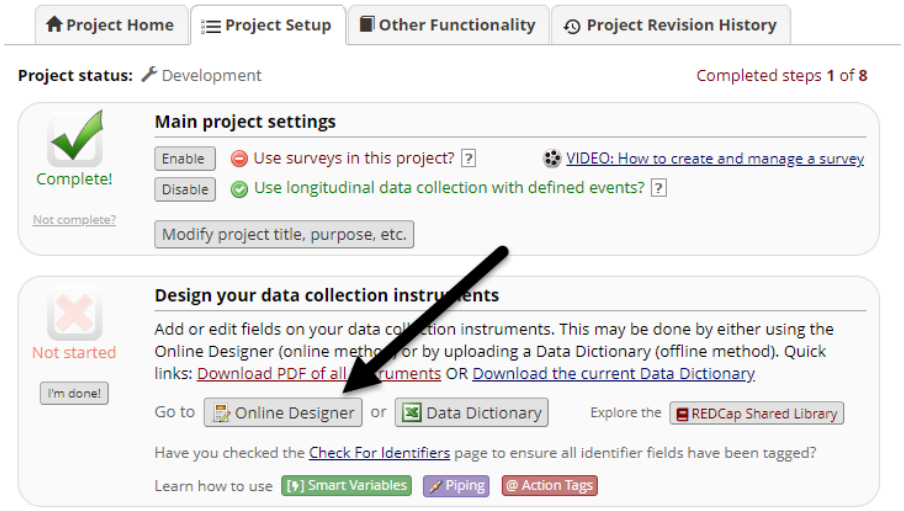
MONASH University

Step 1: Main Project Settings



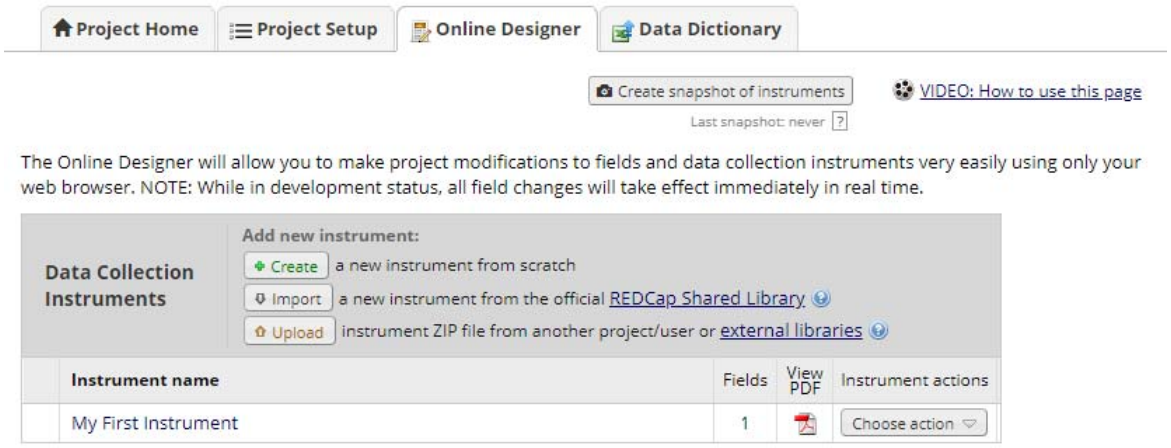
MONASH University

Step 2: Online Designer



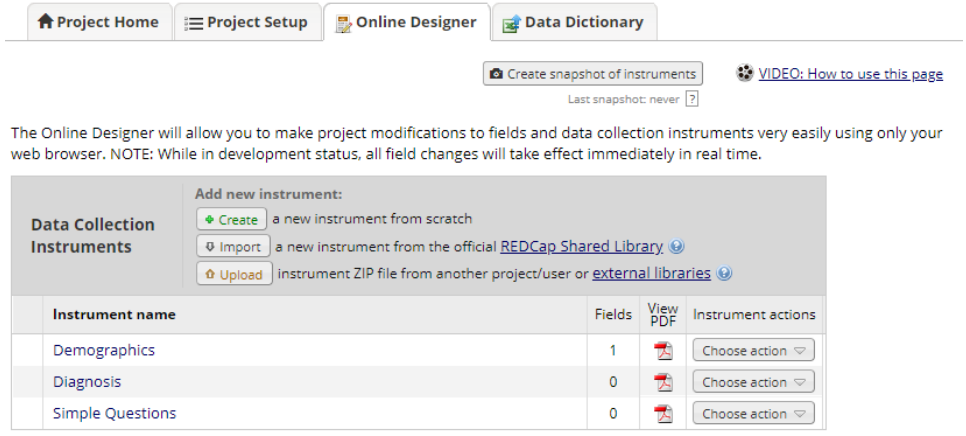
MONASH University

Step 2: Online Designer



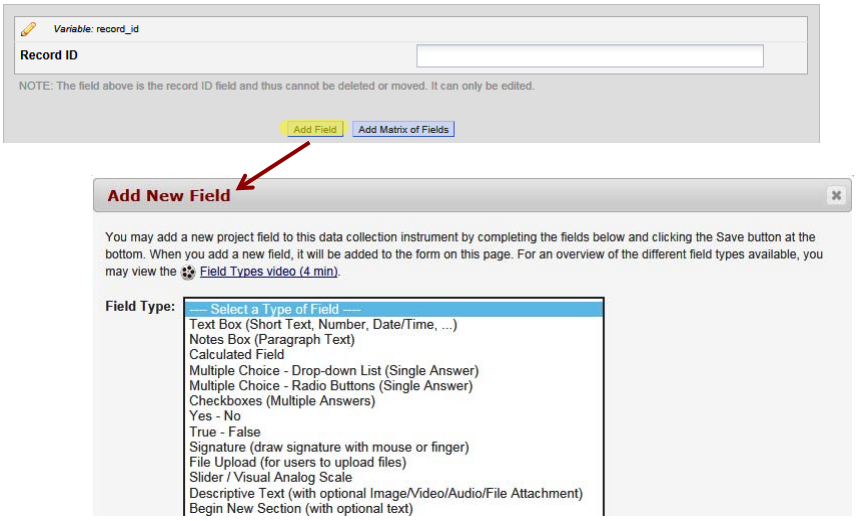
MONASH University

Step 2: Online Designer



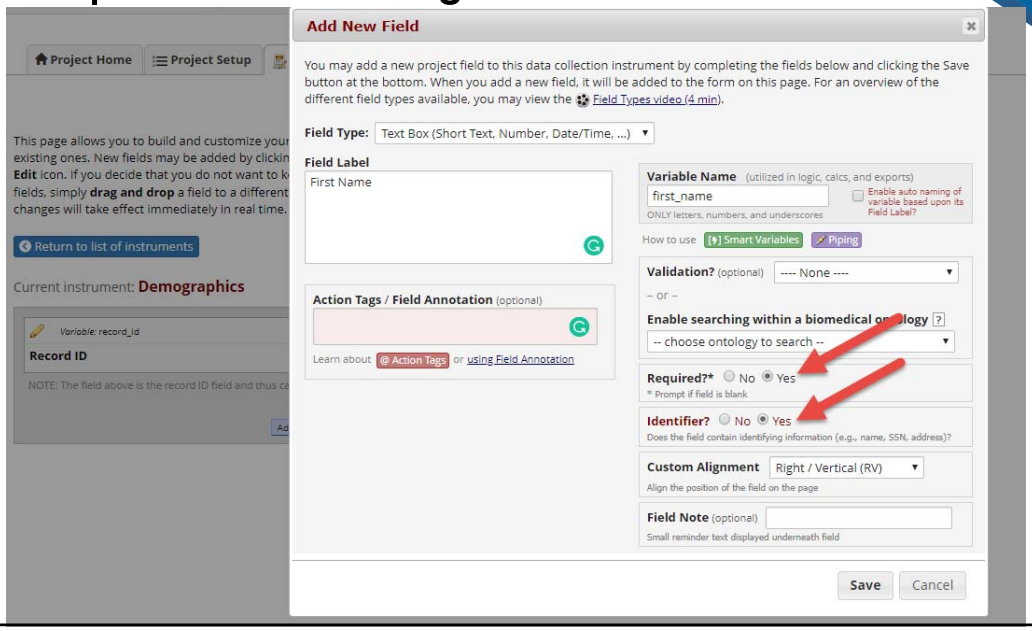
MONASH University

Step 2: Online Designer



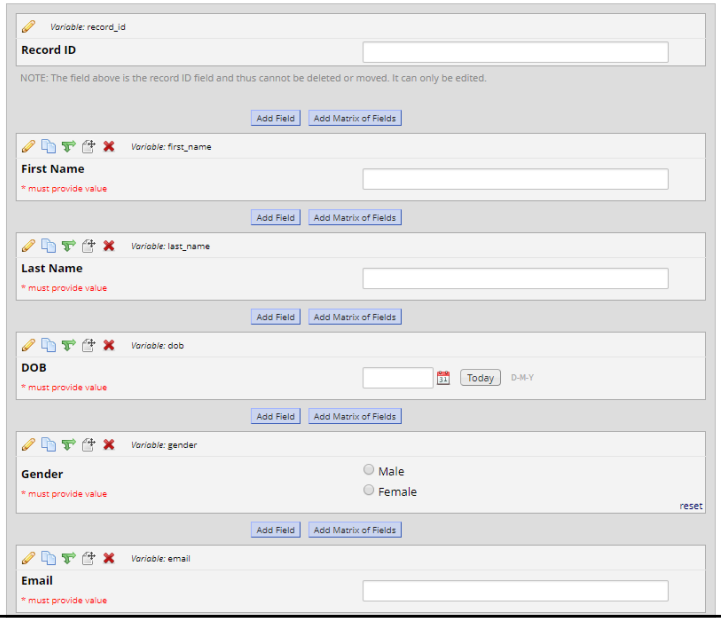
MONASH University

Step 2: Online Designer



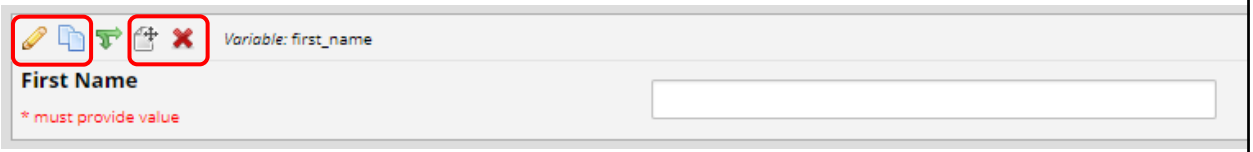
MONASH University

Step 2: Online Designer



MONASH University

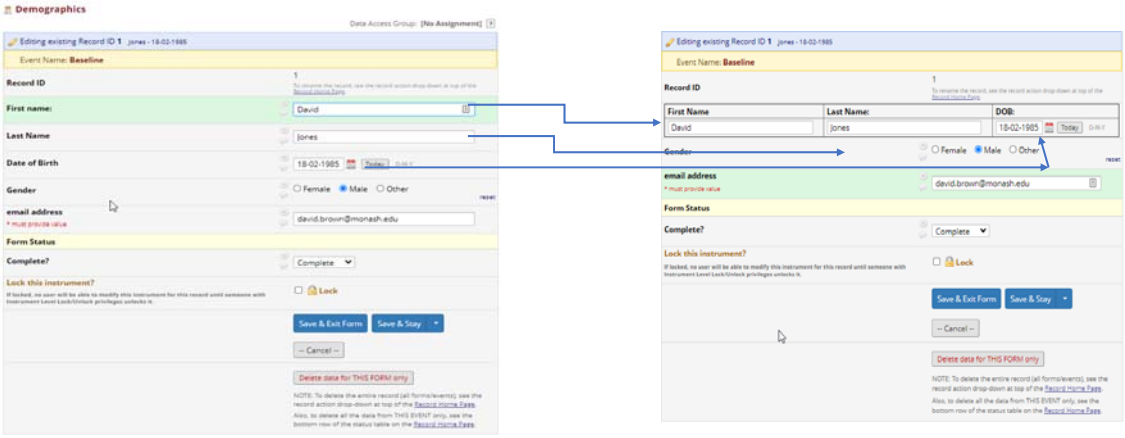
Step 2: Edit/Copy/Move/Delete Fields



MONASH University

Improving Form Layout

Field Embedding (new feature of version 10)



MONASH University

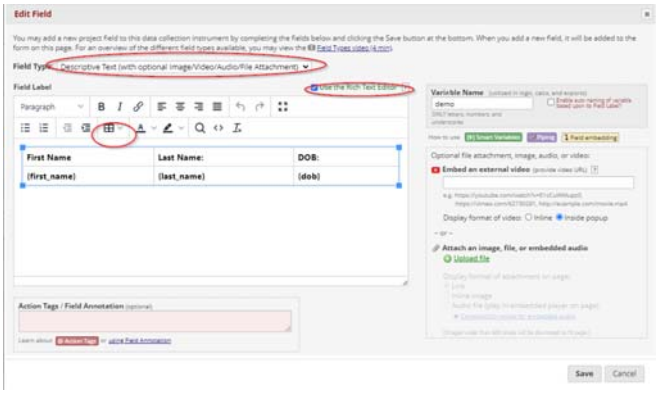
Improving Form Layout

Field Embedding continued

How to embed a field/s

1. Create the fields on your form eg. first_name, last_name, dob, etc
2. Create another field that will contain placeholders for the field/s to be embedded. This is usually 'Descriptive Text' field type
3. Enable the Rich text Editor
4. Create a table structure to suit the field you are collecting. (Consider any field labels you may want)
5. Populate each cell with the variable name to be entered. Note: the variable name must be contained within braces "{ }". Eg. {first_name}

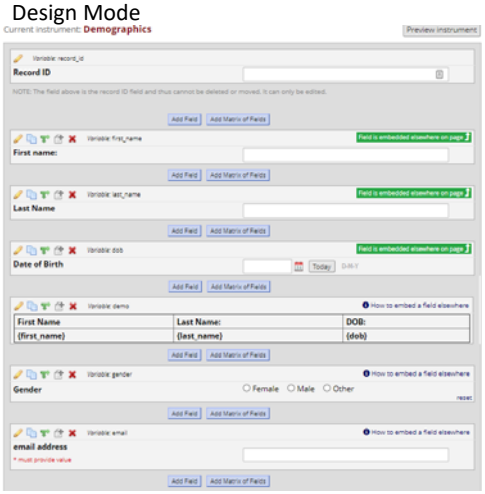
Note; The fields to be embedded must all be on same form.



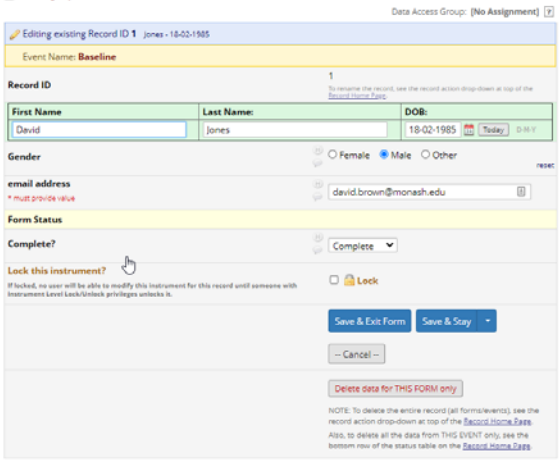
MONASH University

Improving Form Layout

Design Mode

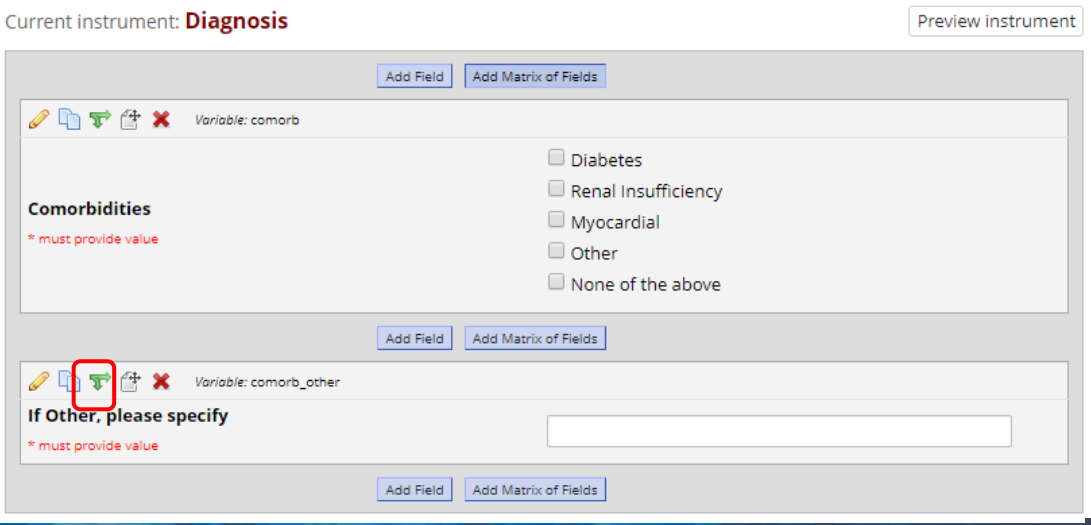


Data Entry Mode

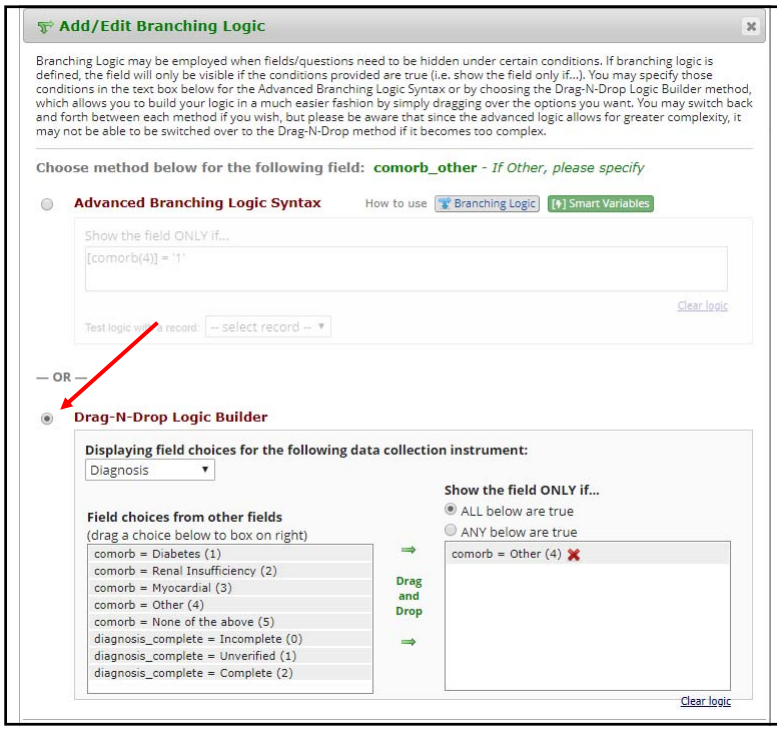


MONASH University

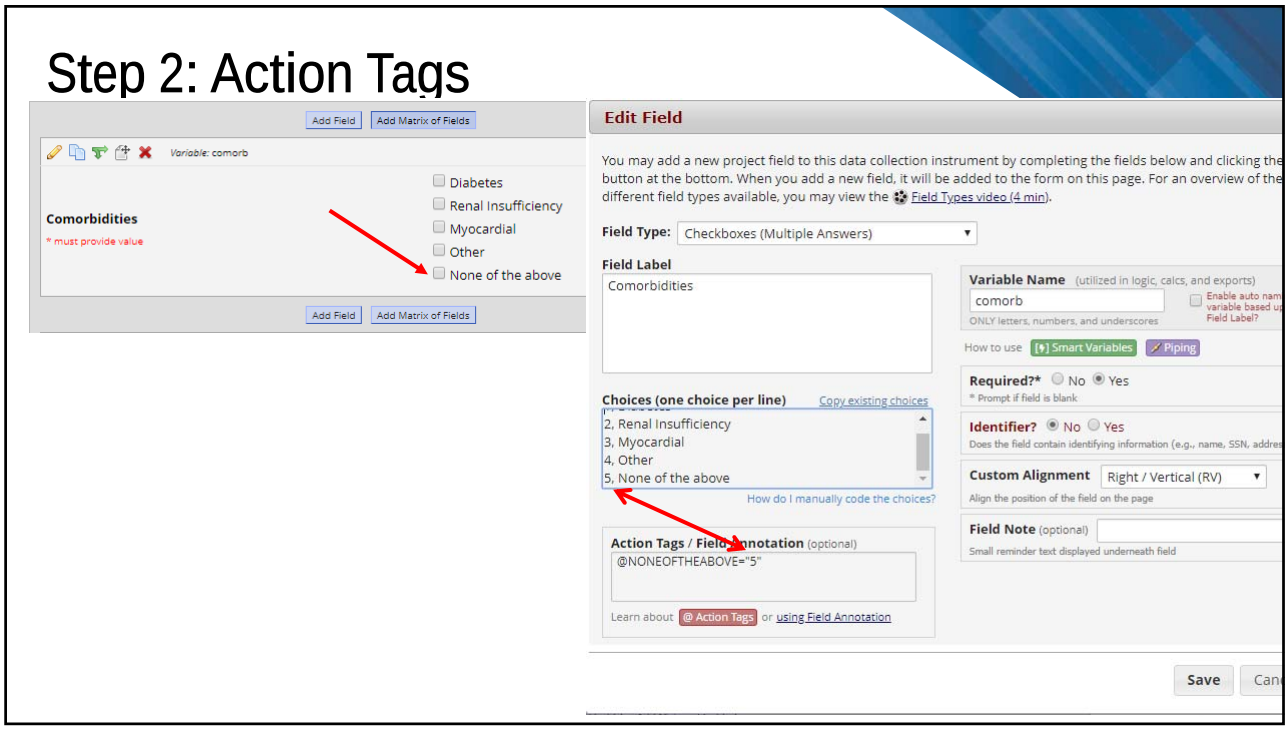
Step 2: Branching Logic



MONASH University



Step 2: Branching Logic



Step 2: Piping

Without Data

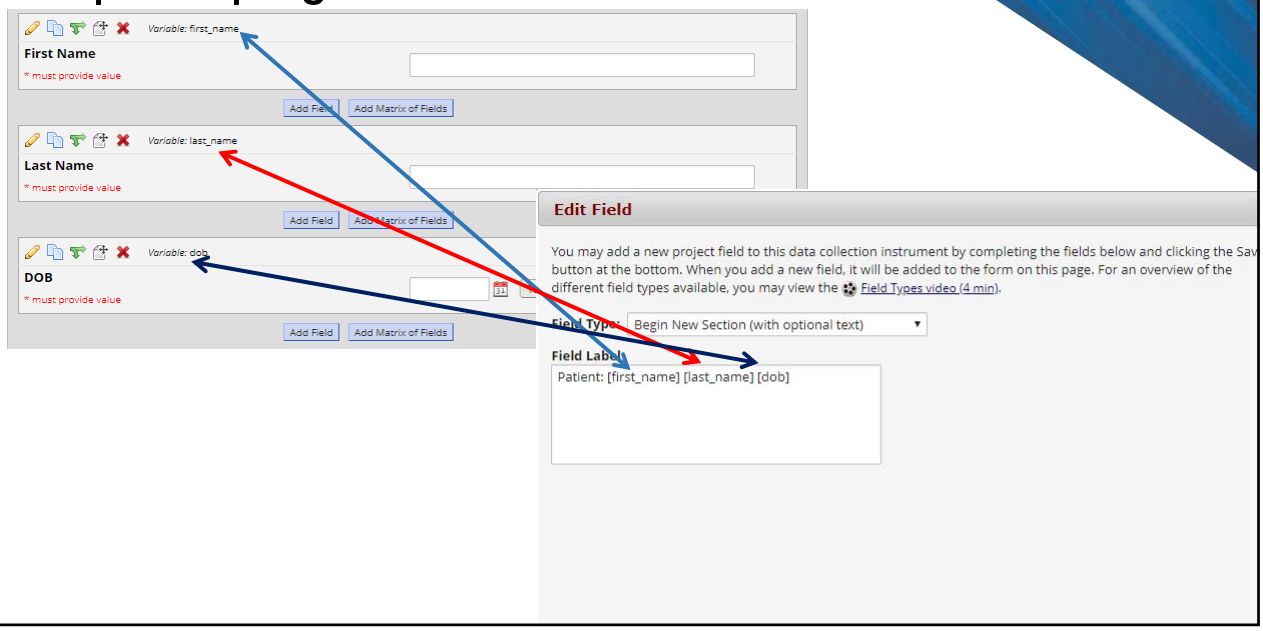
Record ID	2
Patient	____ ____ ____
Comorbidities * must provide value	☐ Diabetes ☐ Renal Insufficiency ☐ Myocardial ☐ Other ☐ None of the above

With Piping Data

Patient	**John Doe 02-10-1989**
Comorbidities * must provide value	☐ Diabetes ☐ Renal Insufficiency ☐ Myocardial ☐ Other ☐ None of the above

MONASH University

Step 2: Piping



Step 2: Matrix Field

Current instrument: **Simple Questions**

Preview instrument

Add Field | Add Matrix of Fields

Matrix group: question_6

These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

	All the time	Most of the time	Some of the time	A little of the time	None of the time
Variable: calm **a. Have you felt calm and peaceful?** * must provide value	○	○	○	○	○
Variable: energy **b. Did you have a lot of energy?** * must provide value	○	○	○	○	○
Variable: depressed **c. Have you felt downhearted and depressed** * must provide value	○	○	○	○	○

reset

Add Field | Add Matrix of Fields

MONASH University

Edit Matrix of Fields

You may add or edit a matrix (i.e. grid) of project fields on this data collection instrument by completing the fields below. By providing all necessary info below and clicking Save, the new matrix of fields will be added to the form on this page. A Field Label and Variable name must be provide for each field in the matrix, and you must also set the Choices (i.e. matrix column headers) and answer format (Single Answer vs. Multiple Answers) for the entire matrix. View a matrix example or Read more about matrix fields on the Help & FAQ.

Matrix Header Text (optional)

These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

Expand

Matrix Rows

Each row represents a different field with its own label and variable name.

Enable auto naming of variable based upon its Field Label?

Field Label	Variable Name (ONLY letters, numbers, and underscores)	Required?	*Field Annotation
a. Have you felt calm and peaceful?	calm	☑	
b. Did you have a lot of energy?	energy	☑	
c. Have you felt downhearted and depressed	depressed	☑	

Add another row

Matrix Column Choices

Choices (one choice per line)

4, All the time
3, Most of the time
2, Some of the time
1, A little of the time
0, None of the time

How do I manually code the choices?

Other Matrix Info

Answer Format: Single Answer (Radio Buttons)

Ranking: What is a ranked matrix of fields?

Allow only 1 choice to be selected per column (radio buttons only)

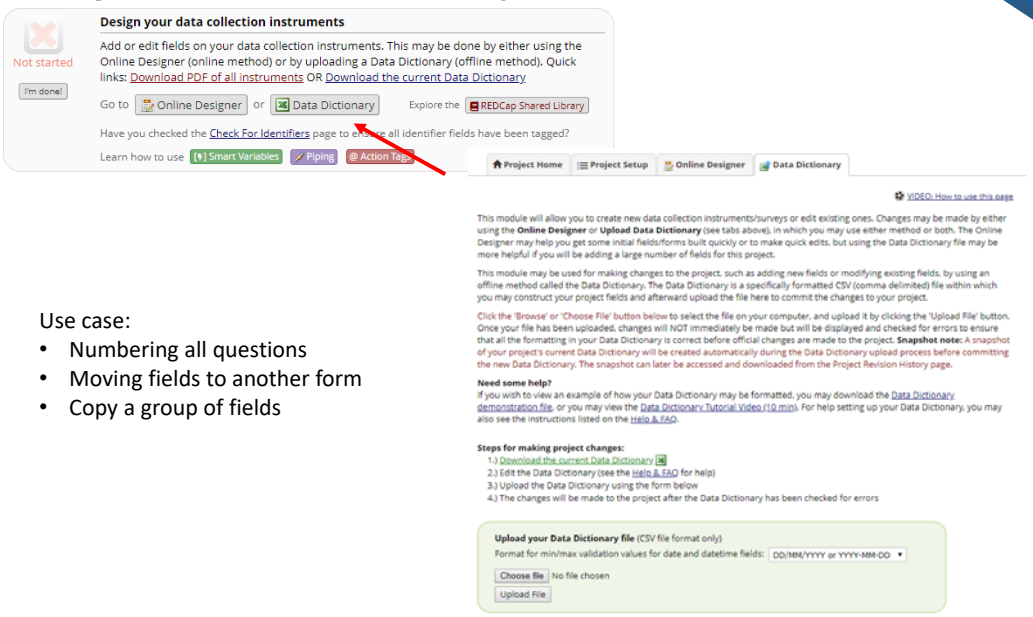
Matrix group name: ONLY letters, numbers, and underscores

question_6 What is a matrix group name?

Step 2: Matrix Field

MONASH University

Step 2: Data Dictionary: Bulk Edit

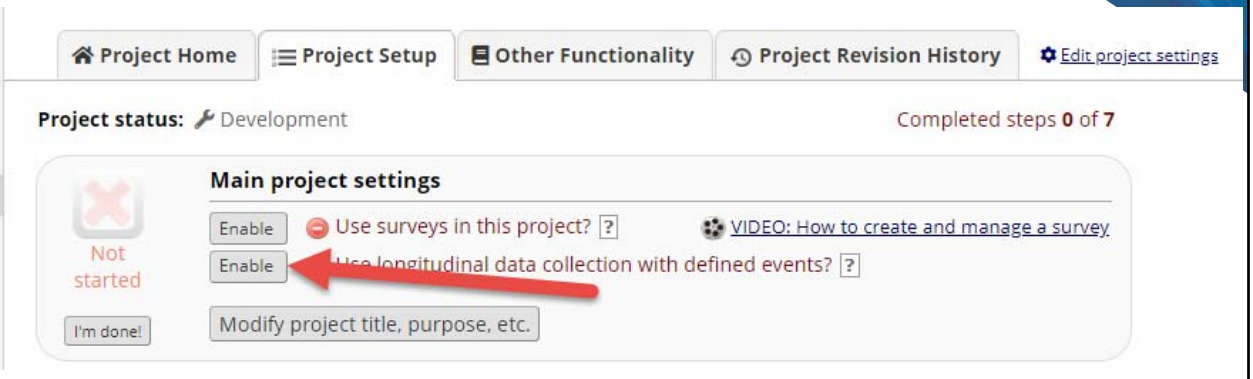


Use case:

- Numbering all questions
- Moving fields to another form
- Copy a group of fields

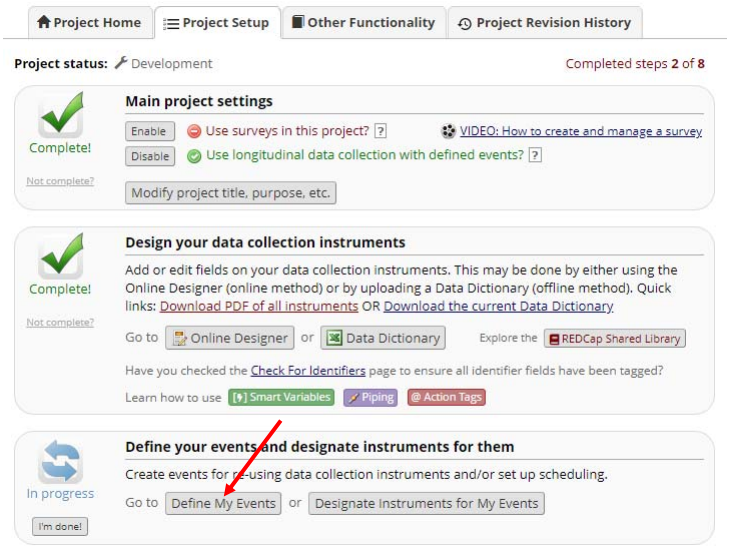
MONASH University

Step 2: Define Events



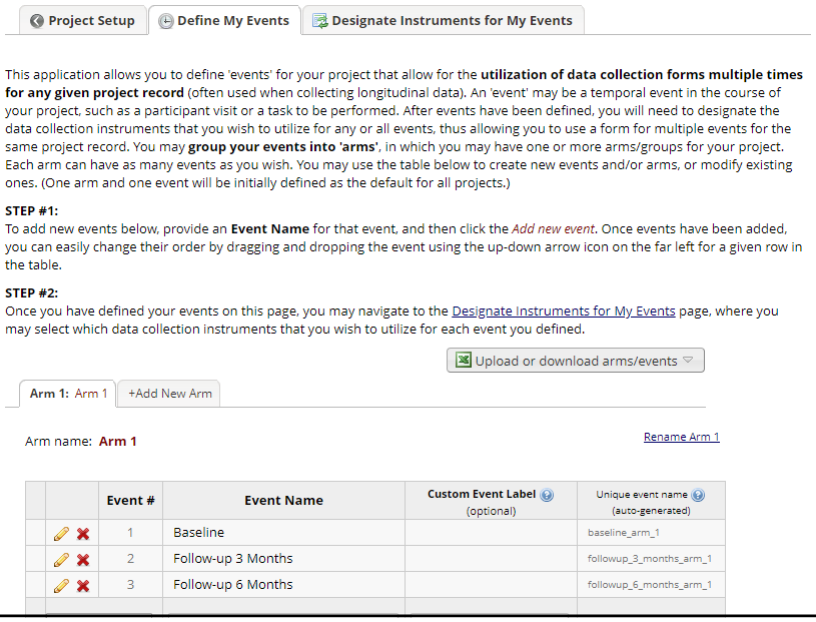
MONASH University

Step 3: Define Events



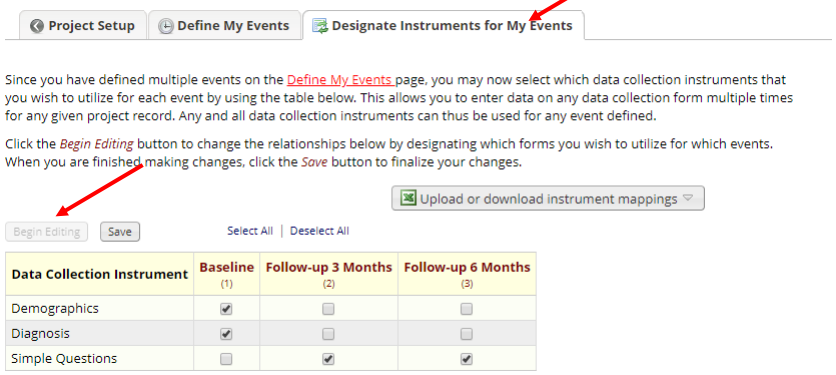
MONASH University

Step 3: Define My Events



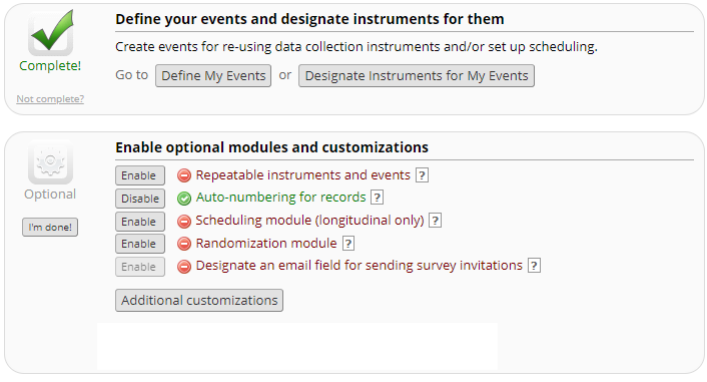
MONASH University

Step 3: Designate Instruments



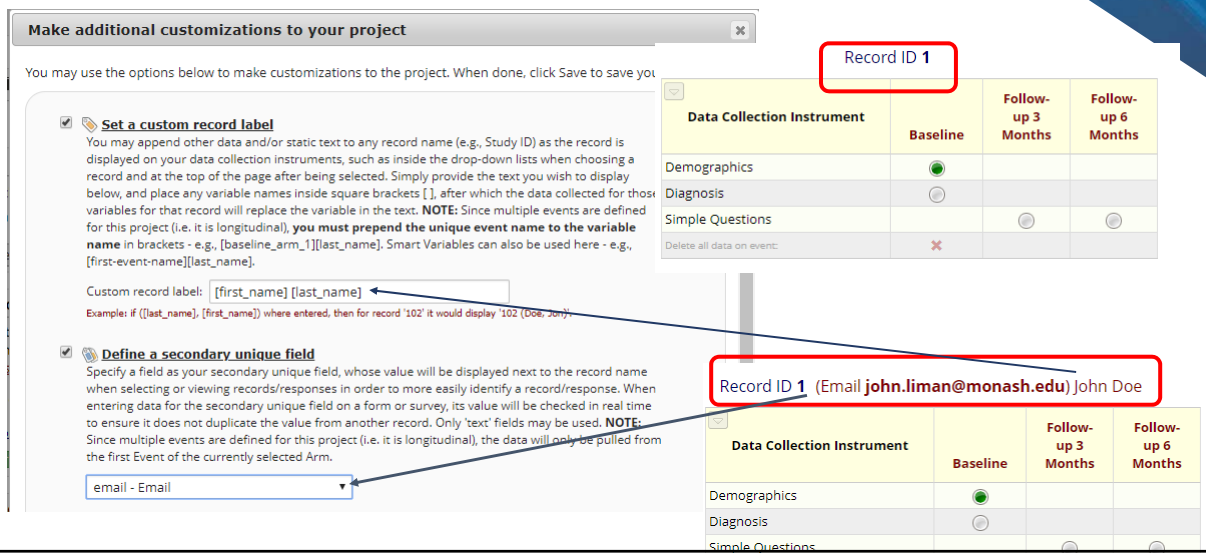
MONASH University

Step 4: Enable optional Modules/Customisations

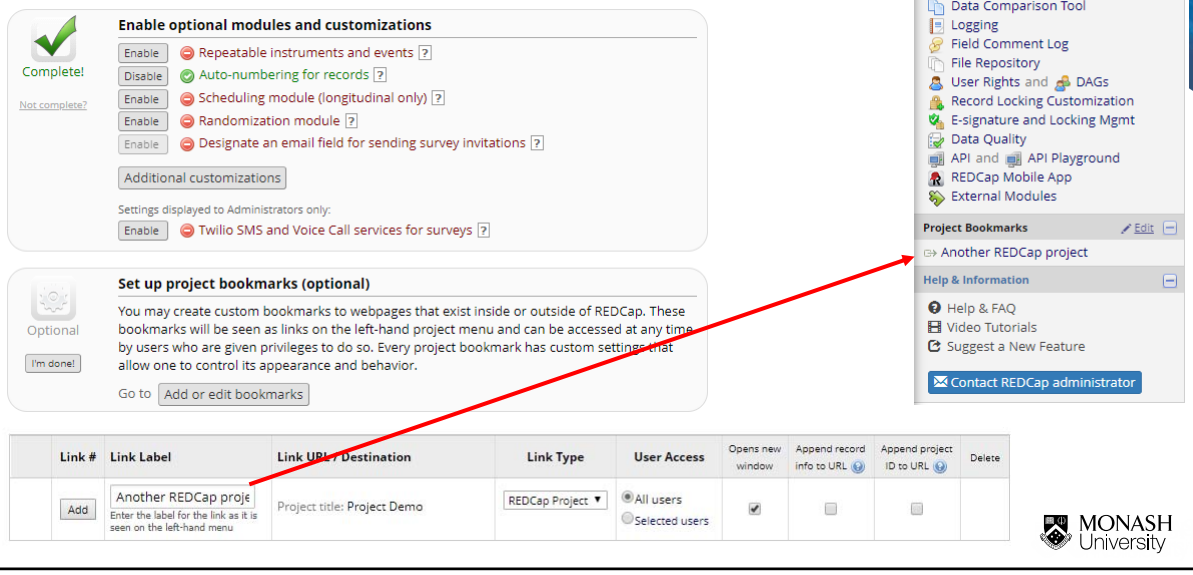


MONASH University

Step 4: Enable optional Modules/Customisations

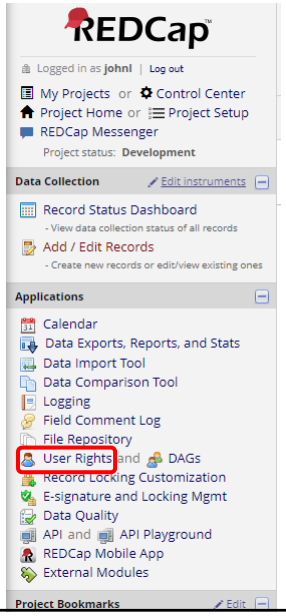


Step 5: Project Bookmarks

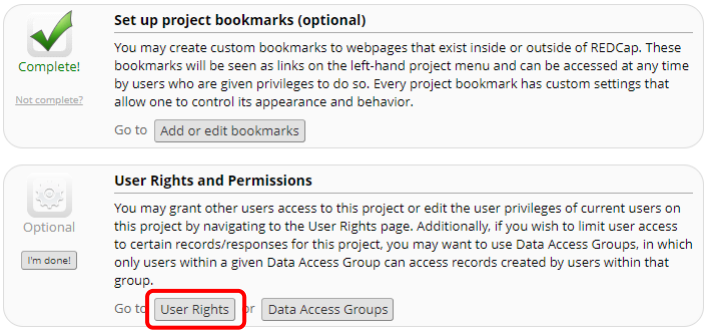


MONASH University

Step 6: User Rights and Permissions

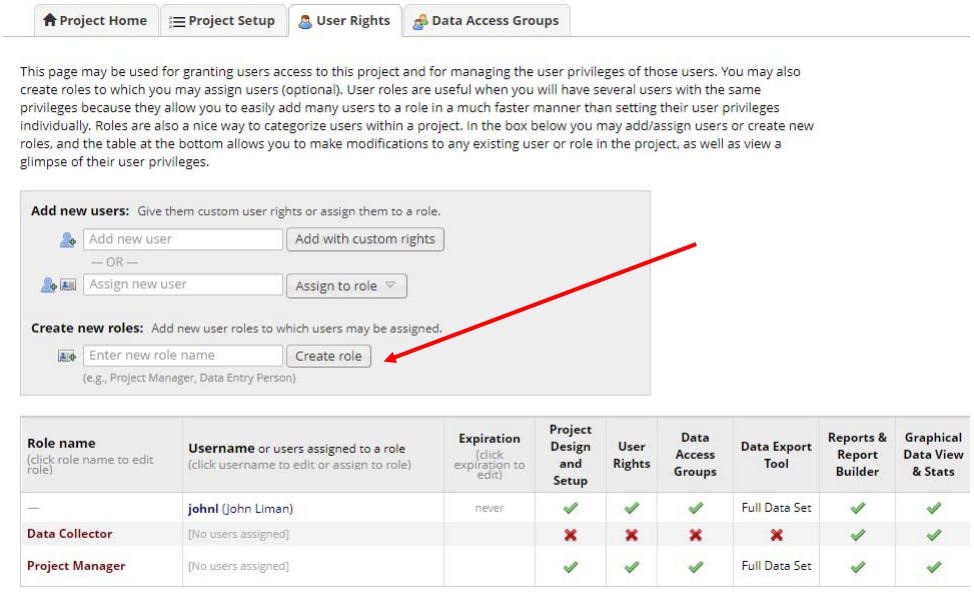


OR



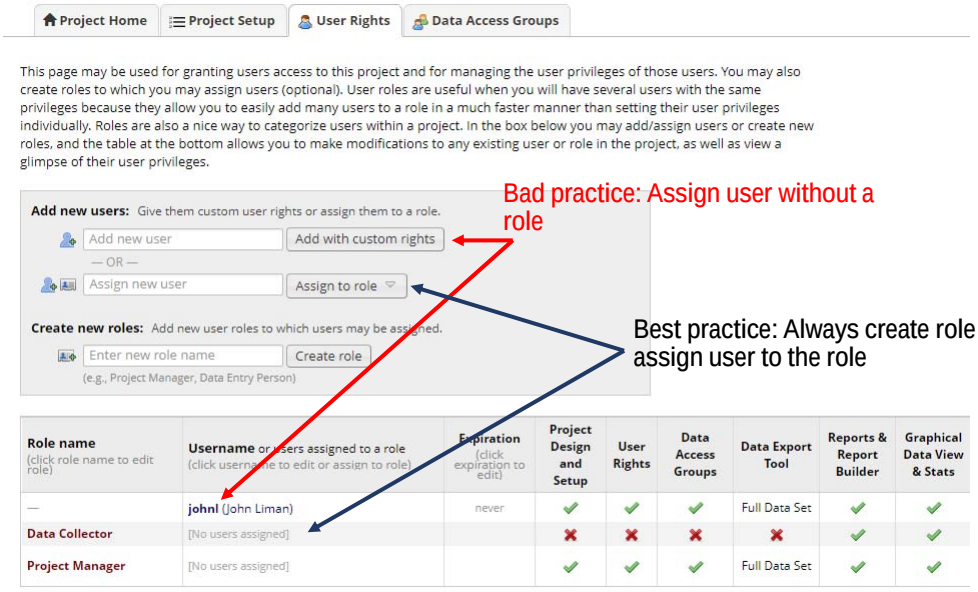
MONASH University

Step 6: User Role



MONASH University

Step 6: User Role

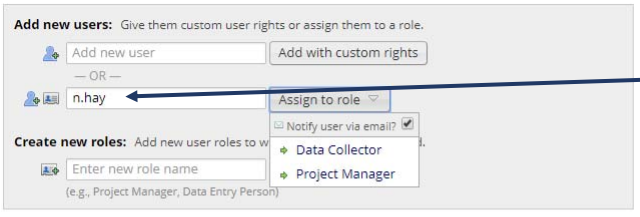


Bad practice: Assign user without a role

Best practice: Always create role and assign user to the role

MONASH University

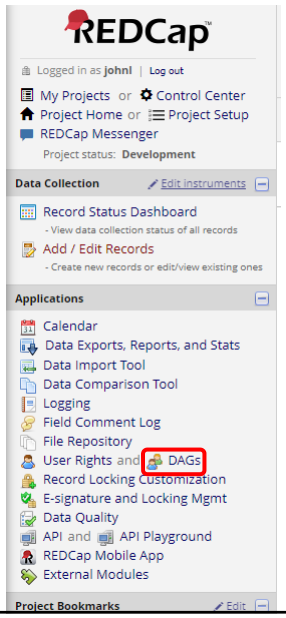
Step 6: Assign User to Role



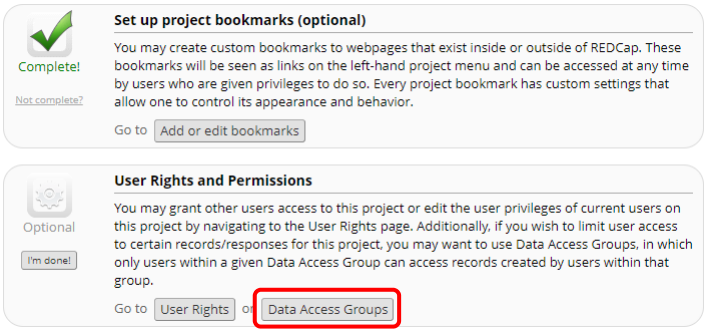
User must exist – if not exist raise a request

MONASH University

Step 6: Data Access Groups

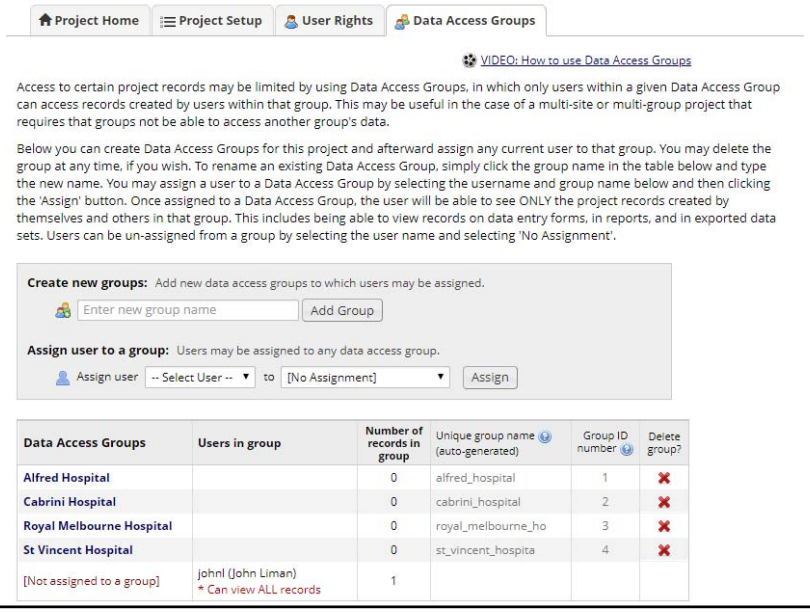


OR



MONASH University

Step 6: Data Access Group



MONASH University

Step 7: Test Your Project

Complete!

Not complete?

Test your project thoroughly

It is important to test the essential components of your project before moving it into production. Try creating a few test records and entering some data for each to ensure that your data collection instruments look and behave how you expect, especially branching logic and calculations. Then review your test data by creating reports and exporting your data to view in Excel or a statistical analysis package. If you have surveys, complete the surveys as if you were a participant by using the Public Survey Link or Participant List by sending a survey invitation to yourself. If other project modules will be used regularly, test them out a bit too. The best way to test your project is to use it as if you were entering real production data, and it is always helpful to have colleagues (especially team members) take a look at your project to get a fresh set of eyes looking at it.

MONASH University

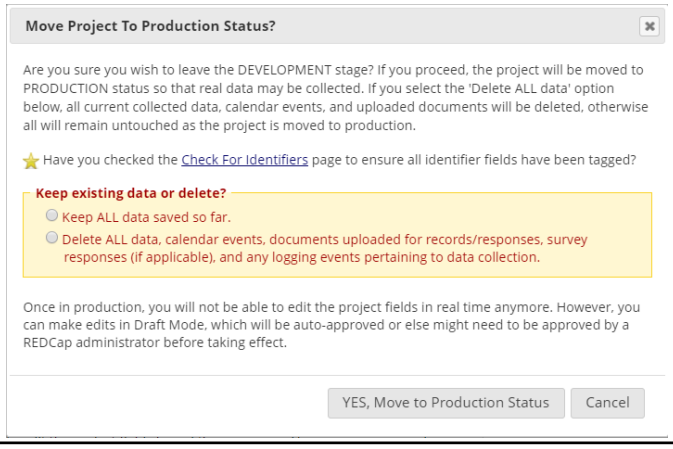
Step 8: Move to Production

Not started

Move your project to production status

Move the project to production status so that real data may be collected. Once in production, you will not be able to edit the project fields in real time anymore. However, you can make edits in Draft Mode, which will then need to be approved by a REDCap administrator before taking effect.

Go to Move project to production



MONASH University

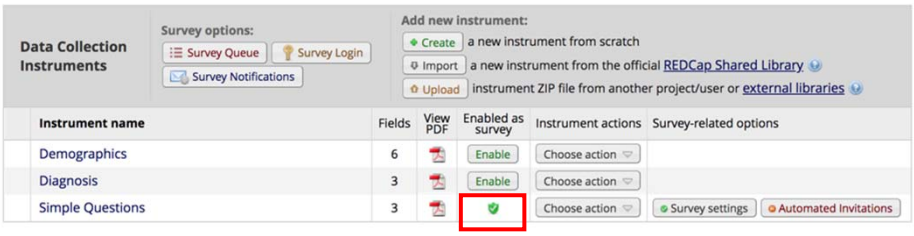
Using Surveys

MONASH University

Creating a Survey

1. Enable the survey feature

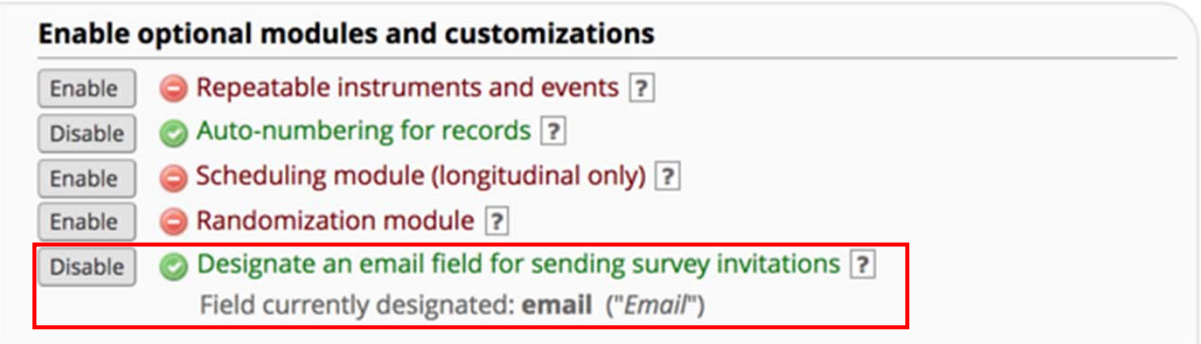
2. Enable the form as a survey



MONASH University

Creating a Survey

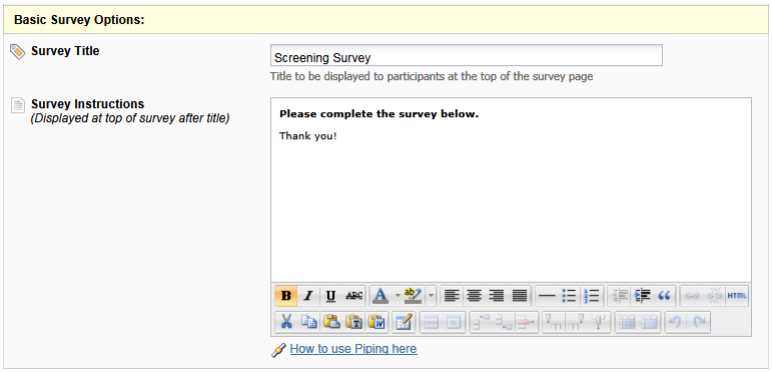
3. Designate an email field for sending survey invitations



MONASH University

Survey Settings

Set the status title, color, instructions, etc



MONASH University

Public Survey Link

Manage Survey Participants

Public Survey Link | Participant List | Survey Invitation Log

Using a public survey link is the simplest and fastest way to collect responses for your survey. You may obtain the survey link below to email it to your participants. Responses will be collected anonymously (unless the survey contains questions asking for identifying data from the participant). **NOTE:** Since this method uses a single survey link for all participants, it allows for the possibility of participants taking the survey multiple times, which may be necessary in some cases.

Public Survey not set up yet!
The public survey has not been set up yet, so a public survey link cannot be displayed here. A public survey is when the first instrument in your project has been enabled as a survey. If you wish to enable a public survey, you may click the button below, after which you will be able to obtain your public survey link and utilize the Participant List for the public survey.

Enable public survey

MONASH University

Participant List

Manage Survey Participants

Public Survey Link | Participant List | Survey Invitation Log

The Participant List option allows you to **send a customized email** to anyone in your list and **track who responds to your survey**. It is also possible to identify an individual's survey answers, if desired, by providing an Identifier for each participant (this feature must first be enabled by clicking the 'Enable' button in the table below). More details

Participant List belonging to "Simple Questions" - Baseline

Displaying 1 - 9 of 9 | Add participants | Compose Survey Invitations | Export list

Email	Record	Participant Identifier	Responded?	Invitation Scheduled?	Invitation Sent?	Link	Survey Access Code and QR Code
christopher.robyn@monash.edu	2	Disabled		-			
Christpoher.Mace@monash.edu	8	Disabled		-			
John.Doe@monash.edu	6	Disabled		-			
john.liman@monash.edu	1	Disabled		-			
Kelly.Hillman@monash.edu	7	Disabled		-			
Kenny.Rogers@monash.edu	5	Disabled		-			
michael.wong@monash.edu	4	Disabled		-			
Michelle.Pullman@monash.edu	9	Disabled		-			
sum.bar.dee@monash.edu	3	Disabled		-			

MONASH University

Application and Tools

MONASH University

Record Status Dashboard

REDCap

Logged in as **johnl** | Log out

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

Data Collection Edit instruments
Record Status Dashboard
- View data collection status of all records
Add / Edit Records
- Create new records or edit/view existing ones

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

Project Bookmarks Edit

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
Complete

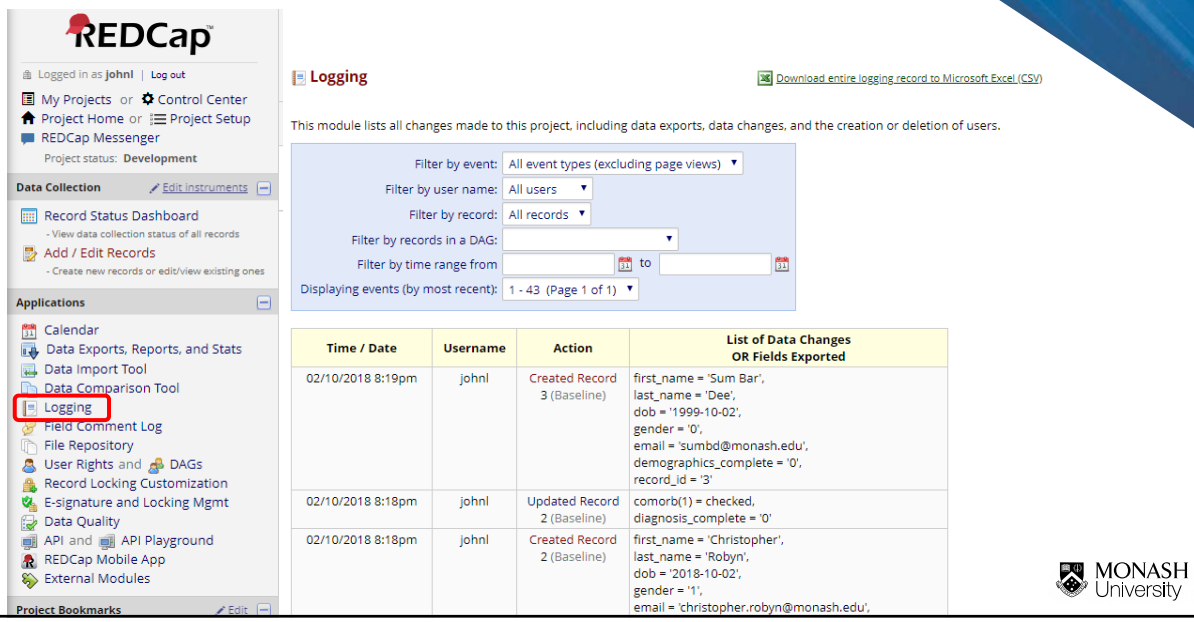
Dashboard displayed: [Default dashboard] | Create custom dashboard
Displaying Data Access Group: -- ALL --
Displaying record: Page 1 of 1: "1" through "3" of **3** records | ALL (3) records per page

Displaying: Instrument status only | Lock status only | All status types

Record ID	Baseline		Follow-up 3 Months	Follow-up 6 Months
	Demographics	Diagnosis	Simple Questions	Simple Questions
1 (Email john.liman@monash.edu) John Doe				
2 (Email christopher.robyn@monash.edu) Christopher Robyn				
3 (Email sumbd@monash.edu) Sum Bar Dee				

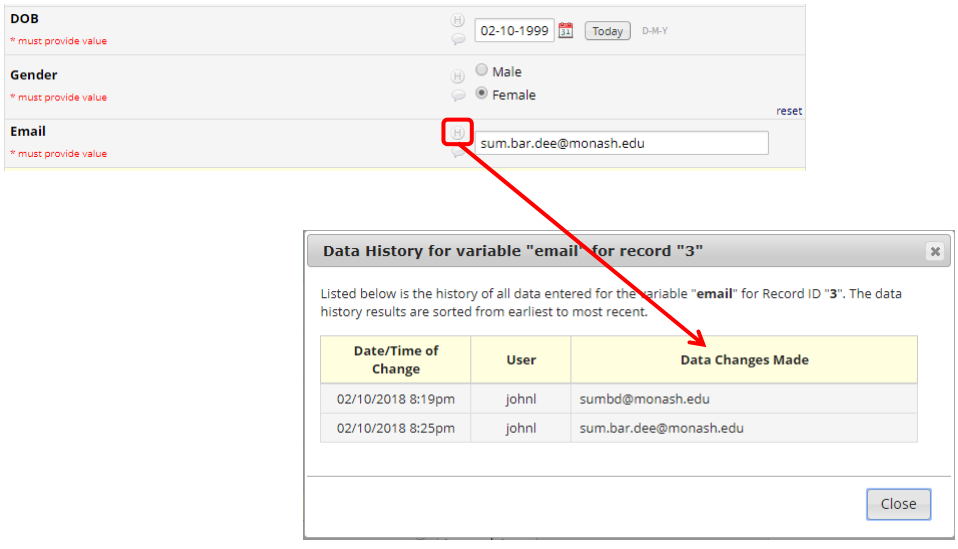
MONASH University

Project Log/Audit Trail



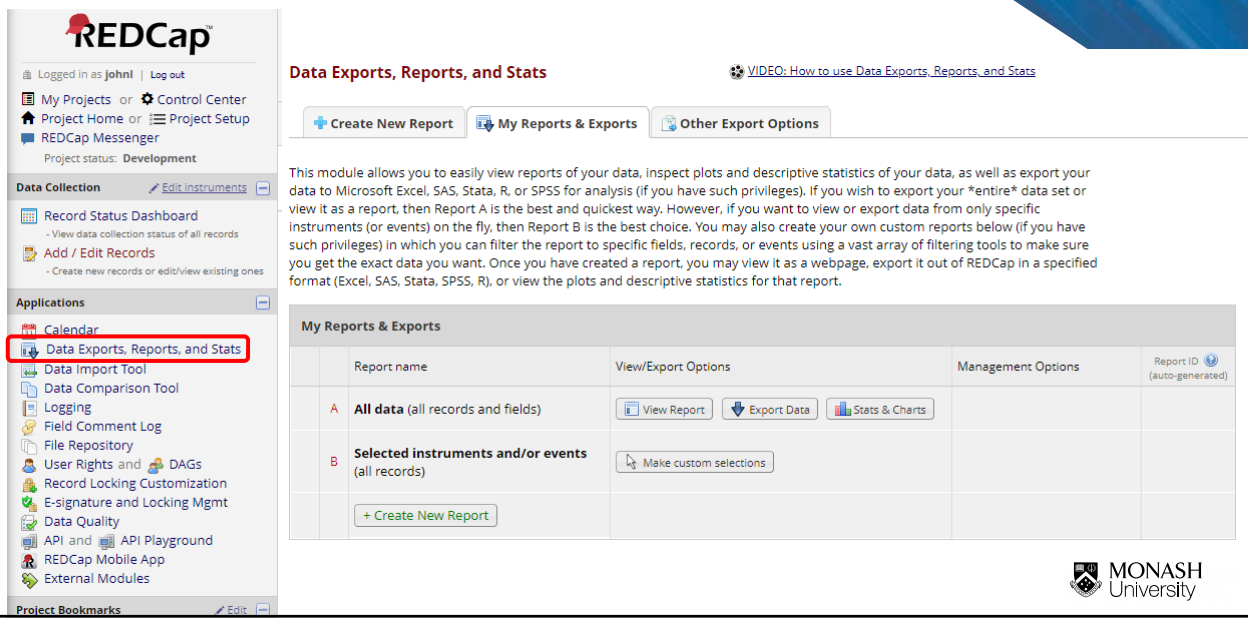
MONASH University

Field Data History

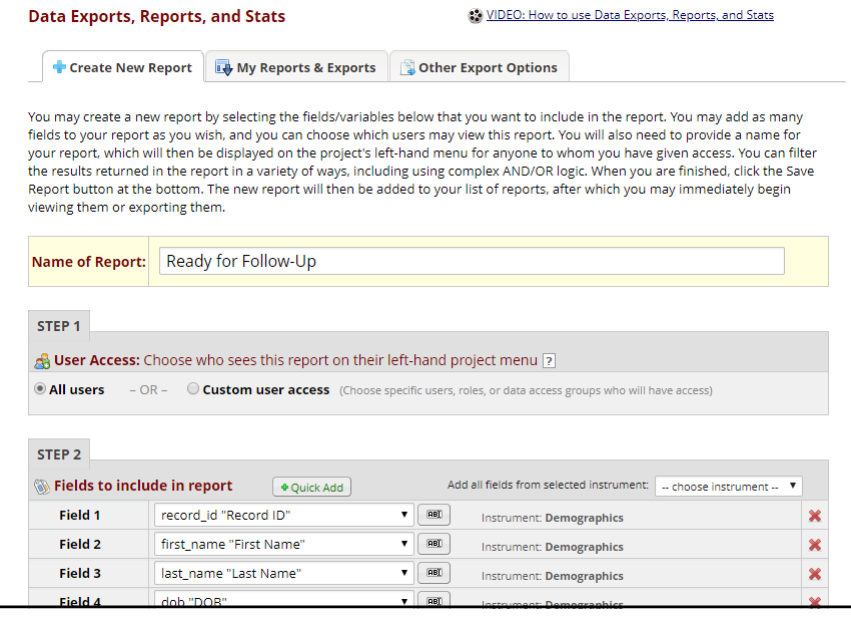


MONASH University

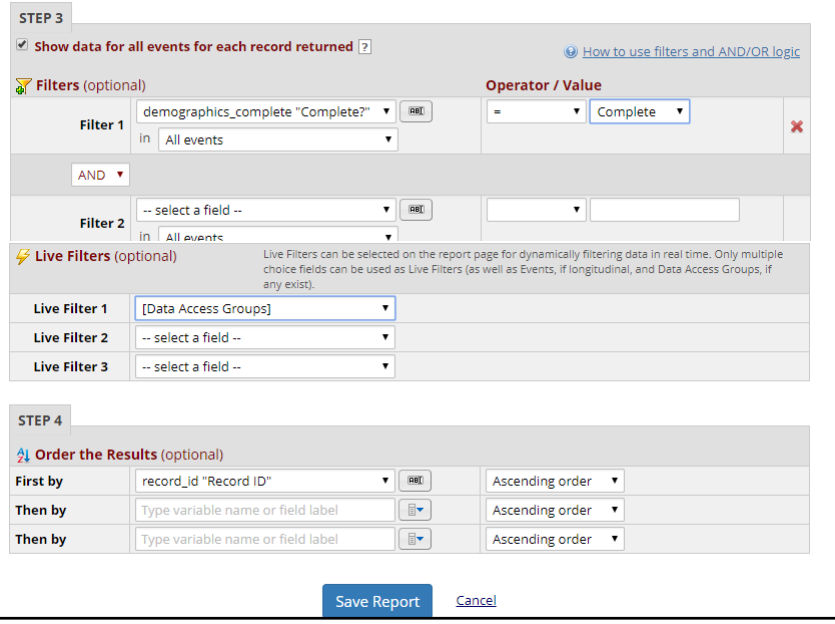
Data Exports



Create New Reports

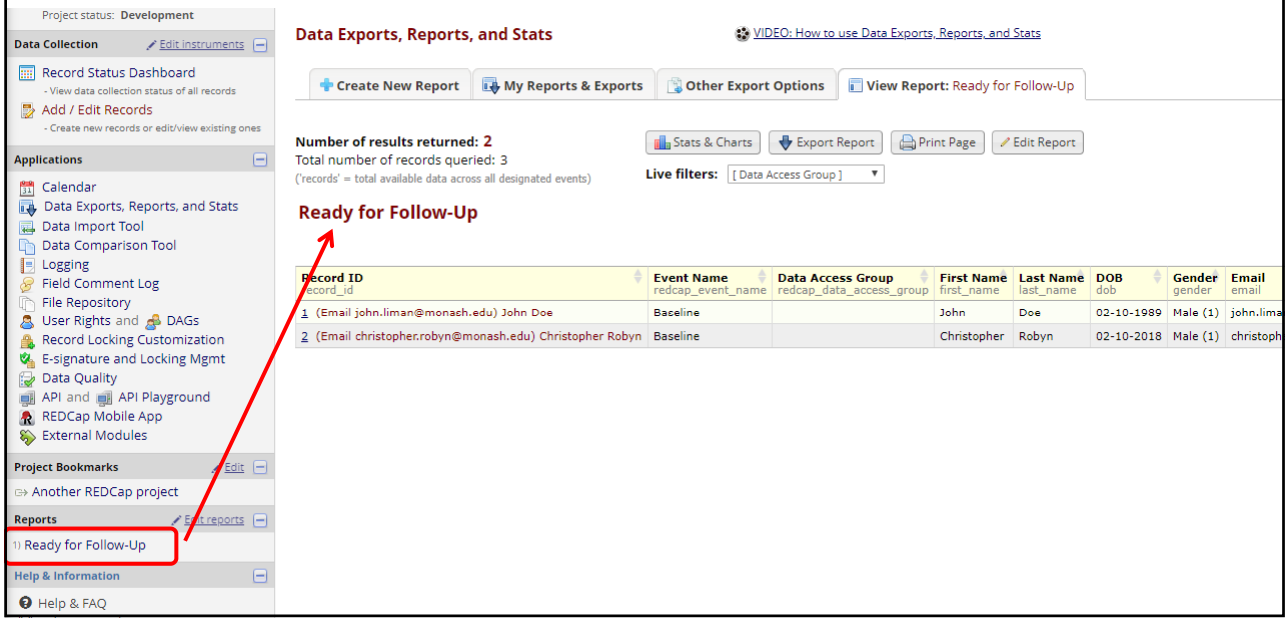


Create New Reports

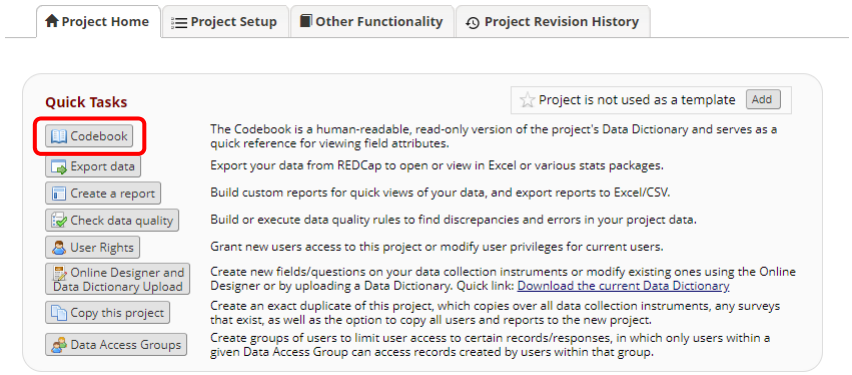


MONASH University

Create New Reports



Data Dictionary Codebook



MONASH University

Data Dictionary Codebook

Project Home | Project Setup | Codebook

The Codebook is a human-readable, read-only version of the project's Data Dictionary and serves as a quick reference for viewing the attributes of any given field in the project without having to download and interpret the Data Dictionary. Note: Checkbox fields have their coded values displayed both in the format defined by users in the Online Designer/Data Dictionary as well as in the extended format seen in data imports and exports (i.e., field___code).

Print page

Data Dictionary Codebook

	#	Variable / Field Name	Field Label *Field Note*	Field Attributes (Field Type, Validation, Choices, Calcula
Instrument: **Demographics** (demographics)				
	1	record_id	Record ID	text
	2	first_name	First Name	text, Required, Identifier
	3	last_name	Last Name	text, Required, Identifier
	4	dob	DOB	text (date_dmy), Required, Identifier
	5	gender	Gender	radio, Required, Identifier 1 Male 0 Female
	6	email	Email	text (email), Required, Identifier

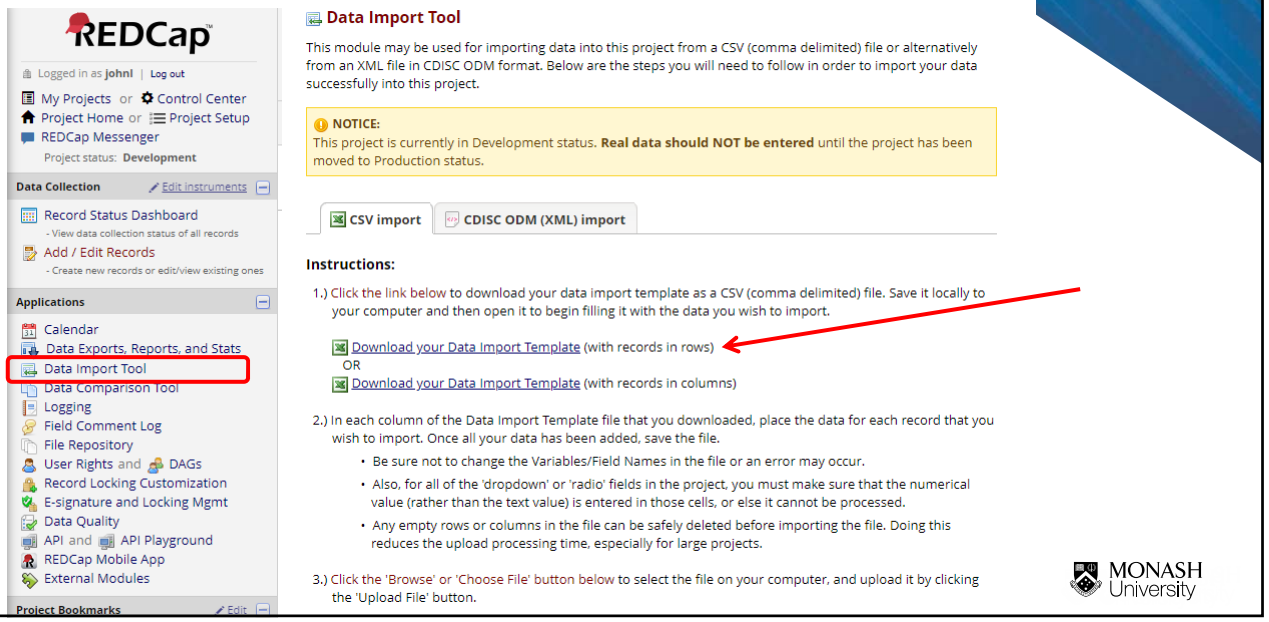
Data Import

Tips

- Perform All Data Export (raw data) and take a look on how it was structured
- Empty columns can be removed from the import file
- Always perform Data Quality check after import (next topic)

MONASH University

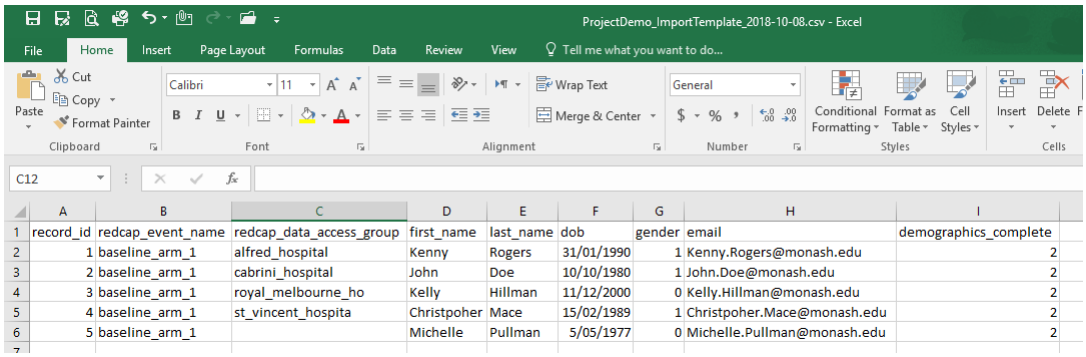
Data Import



MONASH University

Data Import

Sample File

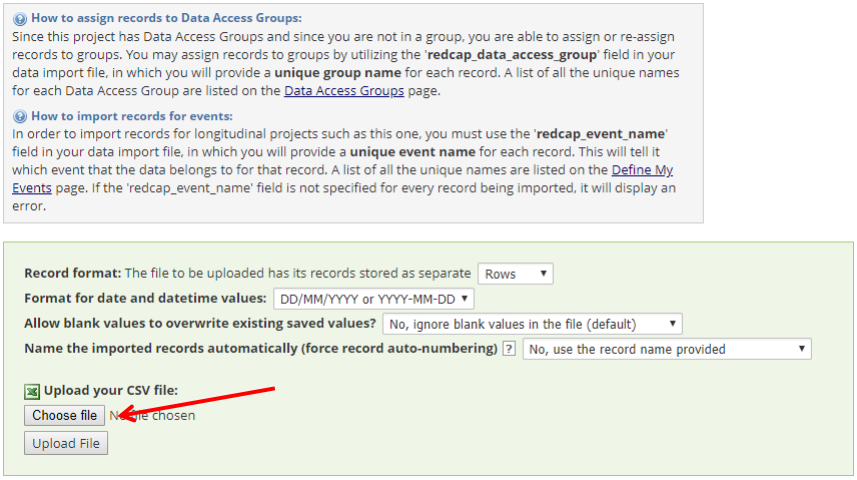


ProjectDemo_ImportTemplate_2018-10-08.csv - Excel

	A	B	C	D	E	F	G	H	I
1	record_id	redcap_event_name	redcap_data_access_group	first_name	last_name	dob	gender	email	demographics_complete
2	1	baseline_arm_1	alfred_hospital	Kenny	Rogers	31/01/1990	1	Kenny.Rogers@monash.edu	2
3	2	baseline_arm_1	cabrini_hospital	John	Doe	10/10/1980	1	John.Doe@monash.edu	2
4	3	baseline_arm_1	royal_melbourne_ho	Kelly	Hillman	11/12/2000	0	Kelly.Hillman@monash.edu	2
5	4	baseline_arm_1	st_vincent_hospita	Christpoher	Mace	15/02/1989	1	Christpoher.Mace@monash.edu	2
6	5	baseline_arm_1		Michelle	Pullman	5/05/1977	0	Michelle.Pullman@monash.edu	2

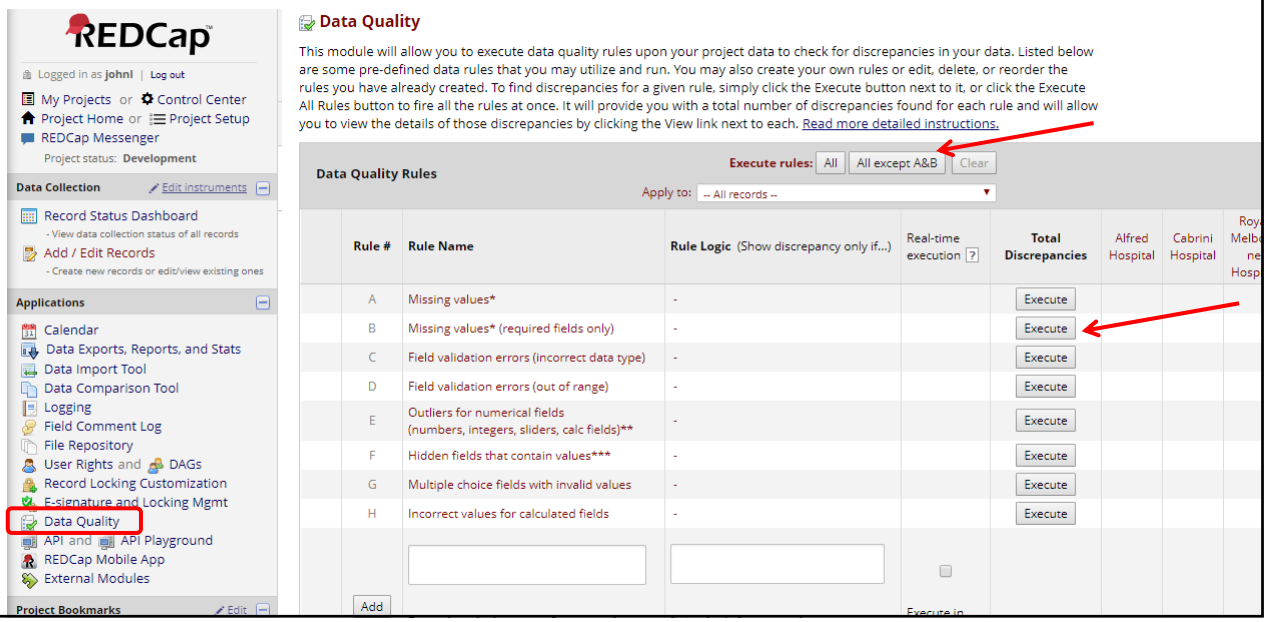
MONASH University

Data Import

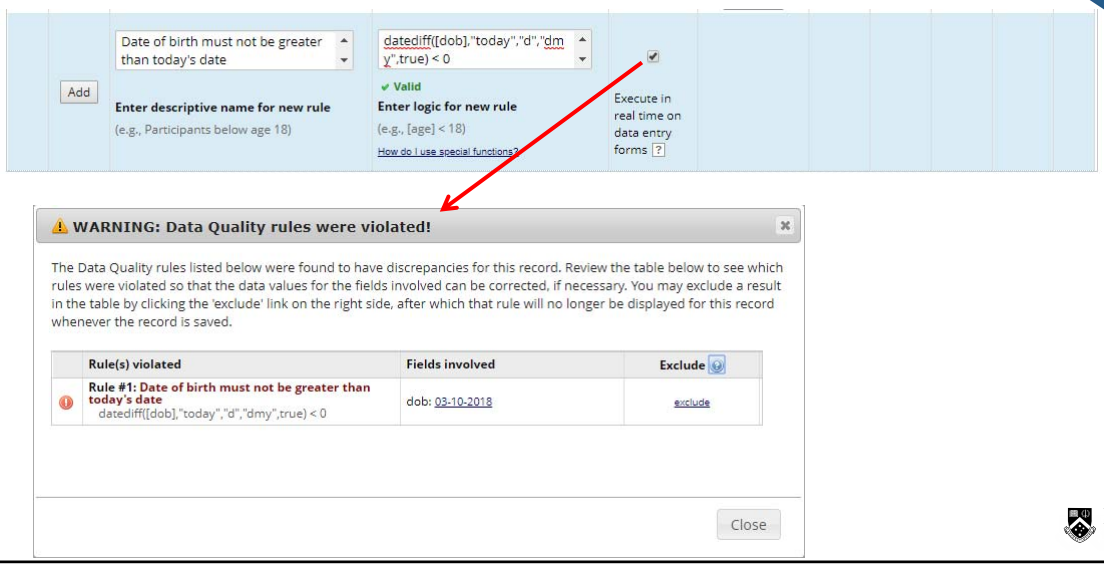


MONASH University

Data Quality



Data Quality



MONASH University

feedback

MONASH University

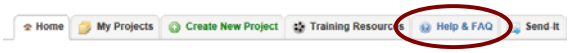
Help and Resources

MONASH University

Help Resources

Blue Button

Help Tab



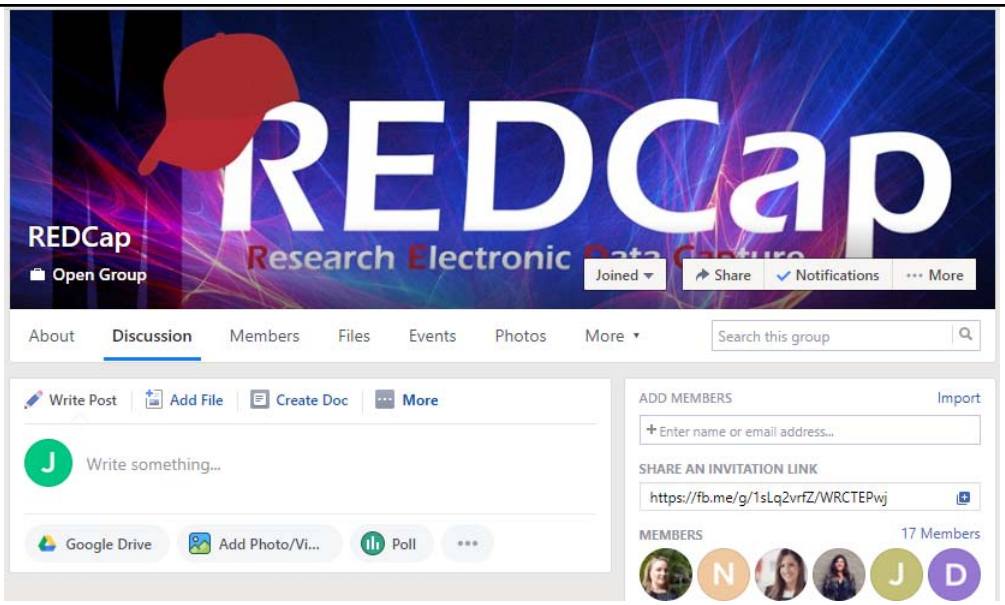
Email

- *redcap@monash.edu*

Workplace

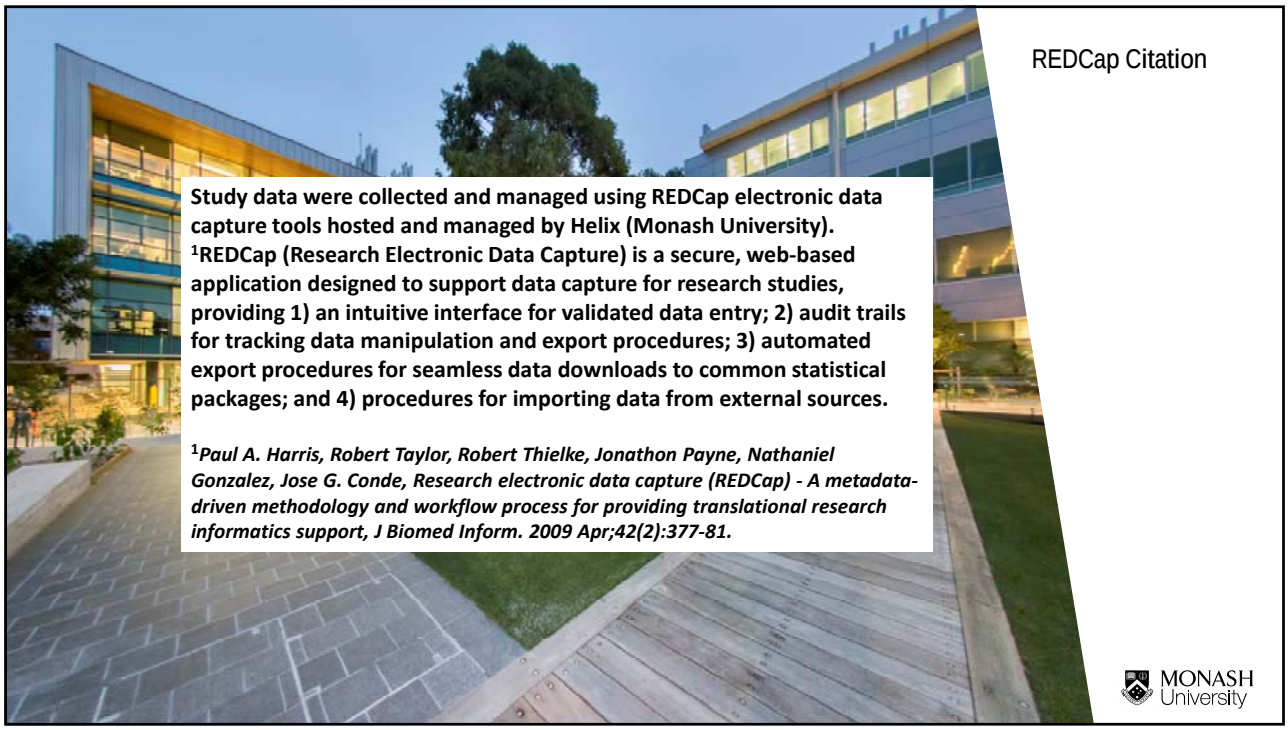
- https://monash.facebook.com/groups/monashredcap/
- Regular User Group @ Monash

MONASH University



REDCap Group @workplace

MONASH University


REDCap Citation
Study data were collected and managed using REDCap electronic data capture tools hosted and managed by Helix (Monash University).
[1]REDCap (Research Electronic Data Capture) is a secure, web-based application designed to support data capture for research studies, providing 1) an intuitive interface for validated data entry; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for importing data from external sources.
[1]Paul A. Harris, Robert Taylor, Robert Thielke, Jonathon Payne, Nathaniel Gonzalez, Jose G. Conde, Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support, J Biomed Inform. 2009 Apr;42(2):377-81.
MONASH University