Basic REDCap Tutorial 101

UCSF ITS - Academic Research Systems

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Please complete a survey about this class:
Basic REDCap Tutorial 101
https://redcap.ucsfopenresearch.org/surveys
Academic Research Systems (ARS) Services

- **MyResearch**
  - Secure, HIPAA compliant web-based environment for the storage, sharing, and analysis of PHI and RHI

- **Research Electronic Data Capture (REDCap)**
  - Secure, HIPAA compliant web-based system for research surveys and databases

- **Clinical Data Research Consulting (CDRC) Services**
  - The extraction of data from the UCSF Medical Center APeX EMR
  - The extraction of data from the SFGH Lifetime Clinical Record
This training session explains how to:

- Request a new REDCap account
- Create a new REDCap project
- Use the Project Setup tools to create, customize and edit your project instruments
- Use the Data Dictionary
This training session explains how to use:

- Assign User Rights
- Import and export data
- Create a survey, distribute it and track responses
- Move your project from Development to Production
REDCap Overview

- Developed by Vanderbilt University (funded by NIH) so that researchers can do quality research, both safely and effectively
- Available for use free of charge for researchers
- Fast and flexible set-up for data entry forms and surveys
- Offered by ARS at UCSF, contact its-arssupport@ucsf.edu for help
- You control access to your REDCap databases and surveys
To apply for a new REDCap account, go to =>
https://ucsf.service-now.com/ess/order_accounts.do

click on the “REDCap Request Form” link.

The REDCap Consortium website includes demonstrations/tutorial videos and the REDCap Shared Library and is available at
http://www.project-redcap.org/
Logging in to REDCap

Log in page: https://redcap.ucsf.edu

Enter your REDCap User ID and Password.
Welcome to REDCap!

REDCap is a secure, web-based 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.

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 Academic Research Systems Support.
You can set the preferred display format for dates, times, and numbers on the My Profile page. The link to your My Profile page is in the upper right-hand corner between your Username and Log out.

This applies to all places in REDCap where dates, times, and numbers are displayed (excluding fields on data entry forms and survey pages).
Creating a new REDCap Project

You may begin the creation of a new REDCap project on your own by completing the form below and clicking the Create Project button at the bottom.

**Project title:**

- newProject

- Title to be displayed on project webpage

**Purpose of this project:**

- Practice / Just for fun

**Start project from scratch or begin with a template?**

- Create an empty project (blank slate)
- Use a template (choose one below)

**Choose a project template**

<table>
<thead>
<tr>
<th>select template</th>
<th>Template title (sorted by title)</th>
<th>Template description</th>
</tr>
</thead>
<tbody>
<tr>
<td>![Template icon]</td>
<td>Basic Demography</td>
<td>Contains a single data collection instrument to capture basic demographic information.</td>
</tr>
</tbody>
</table>

Name your new project, select the purpose. Choose to start with a blank project or use a template for a quick start.
The User Access Dashboard (UAD) is designed to assist you in the management of users who have been granted access to your projects. It allows you to quickly view which users have access to your projects and easily remove/expire them from the project, if needed.

The UAD is only accessible to you if you have access to the User Rights page on the project.
Click the fetch link to view the last time a user accessed a project.
REDCap displays the date and time that each user last accessed the project.

You can Expire or Delete users by clicking the appropriate radio button and clicking the Save button at the bottom of the page.
Creating a new REDCap Project

REDCap displays a message telling you your project has been created.

Your new REDCap project has been created and is ready to be accessed. You may now begin exploring your project and the many features available to you. Below are some instructions to help you get started.

Main project settings

- Use longitudinal data collection with repeating forms?
- Use surveys in this project?

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), in which you may use either method or both. Quick links: Download PDF of all data collection instruments or Download the current Data Dictionary.
Development mode means that you are still **building** and **testing** your project.

Although the project functions and looks just as it will when you are collecting real data, **your real project data should NOT be entered while you are in development mode.**

Development mode is when you want to test all aspects of your project. Changes happen immediately, allowing you to quickly and repeatedly refine your data collection instruments.
Basic REDCap Data Entry Form - Project Setup

The Project Setup tab displays.

You can enable repeating forms and surveys here.

Use the Online Designer or Data Dictionary to build and edit your forms.

Additional optional customizations.
The Project Home tab contains:

- **Quick Tasks**
- **Project Dashboard**
The Data Dictionary "Codebook" displays a read-only, human-readable 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.
## Data Dictionary “Codebook” – Cont’d

The Codebook displays a “human-readable” read-only version of your project’s Data Dictionary.

<table>
<thead>
<tr>
<th>#</th>
<th>Variable / Field Name</th>
<th>Field Label</th>
<th>Field Attributes (Field Type, Validation, Choices, Branching Logic, Calculations, etc.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>record_id</td>
<td>Study ID</td>
<td>text</td>
</tr>
<tr>
<td>2</td>
<td>first_name</td>
<td>First Name</td>
<td>text, Identifier</td>
</tr>
<tr>
<td>3</td>
<td>last_name</td>
<td>Last Name</td>
<td>text, Identifier</td>
</tr>
<tr>
<td>4</td>
<td>address</td>
<td>Street, City, State, ZIP</td>
<td>notes, Identifier</td>
</tr>
<tr>
<td>5</td>
<td>other_stateslisted</td>
<td>Other States Where You Have Lived in the Past 10 Years</td>
<td>checkbox; 1 other_stateslisted_1: NY, 2 other_stateslisted_2: TX, 3 other_stateslisted_3: FL, 4 other_stateslisted_4: ME</td>
</tr>
<tr>
<td>6</td>
<td>other_names</td>
<td>Please List Other State(s)</td>
<td>text</td>
</tr>
<tr>
<td>7</td>
<td>telephone</td>
<td>Phone number</td>
<td>text (phone), Identifier</td>
</tr>
<tr>
<td>8</td>
<td>email</td>
<td>E-mail</td>
<td>text (email), Identifier</td>
</tr>
<tr>
<td>9</td>
<td>dob</td>
<td>Date of birth</td>
<td>text (date_ymd), Identifier</td>
</tr>
<tr>
<td>10</td>
<td>age</td>
<td>Age (years)</td>
<td>calc (Calculation: rounddown((datetoday()-dob),1))</td>
</tr>
<tr>
<td>11</td>
<td>ethnicity</td>
<td>Ethnicity</td>
<td>radio; 0 Hispanic or Latino, 1 NOT Hispanic or Latino, 2 Unknown / Not Reported</td>
</tr>
</tbody>
</table>

**Instruments:**
- Basic Demography Form

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*Academic Research Systems*

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*UCSF*

*University of California San Francisco*

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*Information Technology*

*ACADEMIC RESEARCH SYSTEMS*
What is the REDCap API?
The REDCap API is an interface that allows external applications to connect to REDCap remotely, and is used for programmatically retrieving or modifying data or settings within REDCap, such as performing automated data imports/exports from a specified REDCap project. For details on the capabilities of the REDCap API and how to use it, please see the REDCap API help page.

NOTE: If you wish to obtain an API token, which will allow you to make API requests, then someone must first grant you API user privileges on the User Rights page, after which you will then see a link called ‘API’ on the left-hand menu. That API page will provide instructions on how to request an API token.

Project Tools

Copy the project
Make an exact duplicate of this project. All project fields will be copied over, and you will be prompted to set the title and info for the new project. You may choose to copy or not copy the existing data in the current project to the new one.

Delete the project
You may completely remove this project, in which all its data will be permanently deleted also. This can only be done while the project is still in development or by a REDCap administrator when in production.

Erase all data
You may erase all currently collected data in the project, which includes all calendar events and uploaded documents. This can only be done while the project is still in development or by a REDCap administrator when in production.

Archive the project
You may archive the project if you do not wish to use it any longer. Archiving the project will take it offline and remove it from your list of projects. It can only be accessed again by clicking the Show Archived Projects link at the bottom of the My Projects page. You will be able to un-archive the project at any time and bring it back online simply by accessing it again and returning to this page.

The REDCap Other Functionality tab.
Left Hand Side Menu – Data Entry Forms

- My Projects / Current Project
- Data Collection
- Data Collection Instruments
- Applications
- Help & Information

Left hand side menu
Online Designer - Data Entry Forms

Build your data entry form(s) one field at a time.

The Basic Demography Form is already included here because the template was selected when the project was created.
In the Online Designer, when a field's variable name is changed and that variable name is utilized in the branching logic or calculation equation of other fields in the project, a warning pop-up displays listing all the fields that utilize that variable.

This is done so that you may then revert the change to the variable name or else go and modify all branching logic and calculations affected by it.
Creating/Modifying Forms – Online Designer

Adding/modifying fields in data entry forms.
When you create an instrument using the Add Matrix of Fields function, there is the option to enable the Ranking feature. This new feature allows only one selection per column for all the fields within the matrix.

This prevents anyone from entering the same choice for multiple fields in the matrix.

Ranking is also enforced for data imports to ensure that each choice within a ranked matrix is selected no more than once.

Select the “Allow only 1 choice to be selected per column” checkbox to activate the new Ranking functionality.
The five new field validation types can now be used to provide validation for numbers using a comma in place of the decimal mark.

The validation types are:

- Number (comma as decimal)
- Number (1 decimal place - comma as decimal)
- Number (2 decimal places - comma as decimal)
- Number (3 decimal places - comma as decimal)
- Number (4 decimal places - comma as decimal)
The default data dictionary attached to your ‘Welcome to REDCap’ email.
Download and edit the Data Dictionary, then upload and accept/confirm (if there are no errors).
A new drop-down option is displayed on the Data Import Tool and Data Dictionary Upload when uploading a CSV file. This option allows you to select the format of dates being imported in the CSV file.

The two options to choose from are:

- Option 1 – MM/DD/YYYY or YYYY-MM-DD
- Option 2 – DD/MM/YYYY or YYYY-MM-DD

If you have set the date display preference (via your My Profile page) as the DMY format, then the drop-down defaults to option 2. Otherwise it defaults to option 1.

For the Data Dictionary Upload page, this drop-down only affects how min/max validation values for date and date/time fields are accepted since those are the only dates that exist in a data dictionary file.
Assign User Rights

Click the User Rights link to access the User Rights tab.
To add a new user, enter his or her REDCap User name, **NOT** his or her email or full name.

Click the **Add with custom rights** button.
Assign User Rights – Cont’d

Select the appropriate User Rights you want to assign to the user.

- Basic Rights
- Data Entry Rights

Be sure to click the **Add User** button to save your selections.
## Entering Test/Pilot Data

<table>
<thead>
<tr>
<th>Study ID</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contact Information</td>
<td></td>
</tr>
<tr>
<td>First Name</td>
<td>Jane</td>
</tr>
<tr>
<td>Last Name</td>
<td>Testperson</td>
</tr>
<tr>
<td>Street address</td>
<td>1855 Folsom, 602 SF, CA 94103</td>
</tr>
<tr>
<td>Phone number</td>
<td>(415) 555-5555</td>
</tr>
<tr>
<td>E-mail</td>
<td><a href="mailto:jane.testperson@ucsf.edu">jane.testperson@ucsf.edu</a></td>
</tr>
<tr>
<td>Date of birth</td>
<td>2011-06-21</td>
</tr>
<tr>
<td>Age (years)</td>
<td>1</td>
</tr>
</tbody>
</table>

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

Enter test/pilot data while in development mode.
To export your data, click the Data Exports, Reports, and Stats link.
Select your export option before you export your data to the appropriate statistical analysis program.
Download your Data Import Template, input data offline and upload in to REDCap.
Data Import Tool & Data Dictionary Upload

A drop-down option displays on the Data Import Tool and Data Dictionary Upload when uploading a CSV file which allows you to select the format of dates being imported in the CSV file.

The two options to choose from are:

- Option 1 – MM/DD/YYYY or YYYY-MM-DD
- Option 2 – DD/MM/YYYY or YYYY-MM-DD

If you have set the date display preference (via your My Profile page) as the DMY format, then the drop-down defaults to option 2. Otherwise it defaults to option 1.

For the Data Dictionary Upload page, this drop-down only affects how min/max validation values for date and date/time fields are accepted since those are the only dates that exist in a data dictionary file.
File Repository

This page may be used for storing and retrieving files and documents used for this project. You may upload files here to save for retrieval later, or you may download previously uploaded files in the file list below. Whenever a data export is performed, the resulting data and syntax files are stored here also.

Store and retrieve files and documents used for your project.
Click the Enable button to use Surveys in your REDCap project. Surveys can be sent to participants.
To enable a REDCap instrument as a survey, click the **Enable** button.
Survey Settings Button

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.

<table>
<thead>
<tr>
<th>Instrument name</th>
<th>Fields</th>
<th>View PDF</th>
<th>Enabled as survey</th>
<th>Instrument actions</th>
<th>Survey-related options</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic Demography Form</td>
<td>15</td>
<td></td>
<td>Enable</td>
<td>Rename, Delete</td>
<td>Survey settings, + Automated Invitations</td>
</tr>
<tr>
<td>Cholesterol</td>
<td>6</td>
<td></td>
<td></td>
<td>Rename, Delete</td>
<td></td>
</tr>
</tbody>
</table>

REDCap adds **Survey-related options**.
Set Up My Survey Tab

REDCap displays the **Set Up My Survey** tab.
Select One section per page if you want to have multiple pages in your survey.

Select “Yes” if you would like your survey participant to be able to exit the survey and return at a later time to complete it.
Enabling surveys in your REDCap project adds the **Manage Survey Participants** link to your Data Collection choices.
Distribute Surveys via link or email. Click the Participant List tab for greater control.
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). Unless an Identifier is used, all survey responses collected are considered anonymous. More details

Click the Compose Survey Invitations button to send surveys to your list.
You can control who is emailed a survey and when he or she receives it using the *When should the emails be sent?* option.
Check complete responses from the dropdown menu.
Development v Production

Enter test/pilot data while still in development mode.
Additional Help and Resources

- The REDCap Consortium website including demonstration/tutorial videos and the REDCap Shared Library are available at =>
  [http://www.project-redcap.org/](http://www.project-redcap.org/)

- Submit an online request form for a new REDCap user account at =>
  [https://ucsf.service-now.com/ess/order_accounts.do](https://ucsf.service-now.com/ess/order_accounts.do)

- Assistance with technical issues while using REDCap, please contact
  [ITS-ARSsupport@ucsf.edu](mailto:ITS-ARSsupport@ucsf.edu)

- Complete a survey about this class
  [https://redcap.ucsfopenresearch.org/surveys/?s=PVwH6k](https://redcap.ucsfopenresearch.org/surveys/?s=PVwH6k)

- ITS Help Desk 415-514-4100