

A Comprehensive Guide to REDCap

University of Nebraska Medical Center, Omaha, NE

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Overview of Workflow

Why use REDCap?

Secure – Full user authentication (log-on/password), customizable user rights restrictions, real-time data validation, centralized & secure data storage, data de-identification options, and a full audit trail.

Web-based – Enter data or build your database from anywhere in the world over a secure web connection with authentication and data logging.

Fast – Quick project start-up. Clinical report forms can be implemented without the need for a programmer. Concept to production-level database is possible in less than one day.

Easy – Intuitive user interface and work flow, readily available online training materials, and assistance from the Center for Health Insights (CHI) make it easy to get started.

Fully customizable – You are in total control of shaping your database.

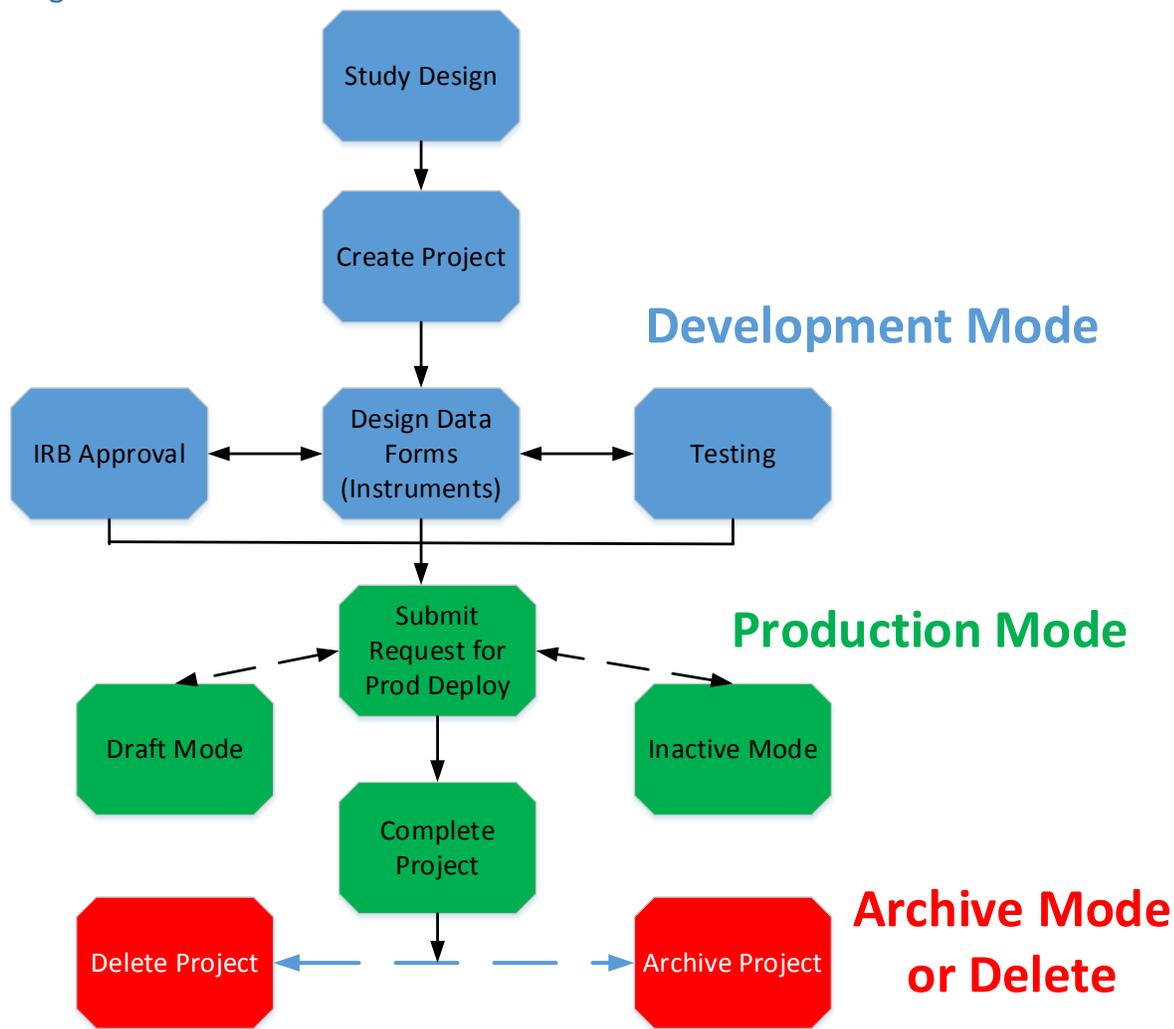
Autonomous utilization – Research groups have complete autonomy and control to add new users and set several levels of specific user rights.

Data export – Seamless data downloads to common statistical packages (including SPSS, SAS, Stata, and to the .csv (comma separated values) format, the most common import and export format for spreadsheets and databases.

Data import – Data import capability through Microsoft Excel

Advanced features – File uploading, auto-validation, branching logic, calculated fields, signature, Dynamic Query (SQL) and more!

Diagram



Study Design: Before beginning a REDCap project, you should formulate a general study design. Ex: Who or what are you planning to study? What kind of data are you measuring? Will your study be cross-sectional or longitudinal? Have you discussed your study design with a statistician?

IRB Approval: If your study is a research project with human subjects or involving Protected Health Information (PHI), you likely need the documented approval of your Institutional Review Board. All research projects with PHI data should go through IRB. On the other hand, projects focused on Quality will not require IRB approval but you are strongly advised to contact IRB and get confirmation. For more information, visit UNMC [IRB](#).

Request New Project: UNMC employees have access to UNMC [REDCap](#) by using NetId and password. In order to manage the volume of projects being hosted by our servers, we encourage you to contact RITO and discuss about your project. Grant funded projects or large projects might needs input from RITO. The RITO staff can be contacted using rito@unmc.edu. It takes less than 1-2 business days to get the answer.

Design Data Forms: In order to effectively collect and order your data, you must first design the data collection forms to do so. This step is the highlight feature of REDCap: immensely customizable, expandable, fluid data forms.

Testing: You should test data collection forms to verify all needed data are collected correctly before

committing to production mode. If possible, designate one person to perform the build and another to perform the testing.

Deployment: Once your study enters Production Mode, you may enter, review, and analyze real data. In Production Mode, it is more difficult and risky to make major changes to your data entry forms, which is why thorough testing is strongly encouraged.

Draft Mode: If you enter production and find that you do need to modify an element of your data entry forms, you may enter Draft Mode and submit changes to be approved by a REDCap Administrator. Data activities can continue during this mode.

Inactive Mode: No data entry or update may take place in this mode, although you may view and analyze data. You can initiate this mode if you want to ensure that no new data entry will occur, but you would still like to access all of your data easily.

Archived Mode: If you have completed data analysis, moved your project to indefinite hiatus, or simply decided you no longer wish to use it, you may move the project to archived status as an alternative to full deletion. Archived projects incur fee as well. You can un-archive your project at any time.

Delete Project: After completion of the project, it is highly recommended that you delete the project. However, we recommend you to download the project data dictionary along with its data and save safely in UNMC cloud environment (Box or OneDrive). After this step, delete the project from REDCap. In case if you need to restore the project at a later point of time, you can import the data dictionary with or without data.

REDCap Terminology

Arms: groups of events. You may want to employ multiple arms when using different treatment groups (control, experimental) or conducting a multi-site study, for instance.

Branching Logic: may be employed when fields/questions need to be hidden for data entry under certain conditions. For instance, you may want to hide the question “How many hours per week do you watch TV?” until a “Yes” answer is checked for a previous question, “Do you watch TV?”

Data Access Groups: restrict viewing of data within a database, for instance in a double-blind or multi-site study.

Data Collection Instrument: a form created to capture data. This term is essentially interchangeable with “data entry form.”

Data Dictionary: a specifically formatted .csv spreadsheet containing the metadata used to construct data collection instruments and fields.

“Development” vs. “Production” Modes: study status modes. In Development Mode, you are still working through the design of your data forms and testing them with mock data; you may make any changes to the forms at any time. In Production Mode, you have deployed your forms and you are collecting real data; changes to your forms are more difficult to implement once you have launched into Production Mode. (See also: [Development vs Production Modes.](#))

Event: used in longitudinal designs. An event is a scheduled (or unscheduled) occurrence during which data is captured using your REDCap data instruments (forms).

Field: a singular data entry, such as age or height.

Form Status: status of the record's data form completeness, denoted with a color; red – incomplete; yellow – unverified; green – complete.

Logging: the audit trail of modification occurrences in the project.

Record: the set of information for a unique participant or subject. Each record is composed of a number of fields (pieces of data), which can be spread across multiple forms (instruments) per record.

Record ID: a unique key that can identify each record in the database. (You may label this differently in your project, but the ID must remain the first field in the first data form.)

User Rights: the customized privileges that research team members have in terms of data form modification, data entry, and data access. P.I.s may create "Roles" for groups of team members to ensure consistency in specified user rights.

Variable Name: the name of the variable that is stored in the REDCap database (not visible during data entry).

Begin your Project

Signing in to REDCap for the first time

The first time you log in to <https://unmcredcap.unmc.edu>, it will prompt you for your basic information in order to verify your account.

[Log out](#)

Basic User Information Form

Before accessing REDCap, we first need to obtain some basic information about you. Please enter ALL the fields below and then hit the Submit button. Once this information is saved, you can change it any time by navigating to the My Profile page, which you will find the link to at the top right of every page.

| | |
|-----------------|--|
| Username: | john.smith |
| First name: | <input type="text" value="John"/> |
| Last name: | <input type="text" value="Smith"/> |
| Email: | <input type="text" value="John.smith@unmc.edu"/> |
| Re-enter email: | <input type="text" value="John.smith@unmc.edu"/> |

NOTE: The email address entered above will first need to be verified before access to REDCap is granted. After clicking the Submit button, an email will be sent to that email account, after which you will need to click the link inside the email to verify your email account before accessing REDCap.

Once you submit this information, an e-mail will be sent to your UNMC account. Click the link included in that e-mail to verify your account, and you'll be all set to use REDCap!

✔ Email account verified!

Your email account for REDCap has now been verified. You may now access REDCap by clicking the link below.

[Access REDCap](#)

From: rito@unmc.edu
Sent: Wednesday, May 01, 2019 3:50 PM
To: Smith, John
Subject: [REDCap] Verify your email address

[This message was automatically generated by REDCap]

To complete the process of setting up a new primary email for your REDCap account with username "**john.smith**", you will need to confirm your email address by clicking the link below.

[Click here to confirm your email address](#)

If the link above does not work, try copying the link below into your web browser:

https://unmcrcdcap.unmc.edu/redcap/index.php?user_verify=m3wvcXUhkFlyKwcskjME

This link is unique to you and should not be forwarded to others.

Things you should already know about your project

There are several things you should already know about your project before submitting a project creation request. The following items are intended to provide a starting ground for prior knowledge, but this will vary on a case-by-case basis. Some studies may have far more than this planned out already, while others may still be defining the basics.

The end goals of your research

The specific data you are going to be capturing

The type of study you are going to be performing (longitudinal, cross-sectional, etc.)

Who will comprise your research team?

We recommend designing your data forms in REDCap **before** submitting your final IRB protocol for approval, so that you may include PDF versions with your IRB submission. Whether you are in the beginning or ending stages of IRB approval, we will likely be able to assist and support your project. Notably, an IRB approval notification (email copy) will be required before we will be able to move your project to "Production" (official deployment) status.

Do I need IRB approval?

Note: The Research IT Office will not make this determination for you. If in doubt, we recommend consulting your IRB. The following information may help you prepare for that conversation.

The UNMC IRB is an independent, academically-based committee constituted of medical, scientific, and non-scientific members whose responsibility is to ensure the safety, well-being, and the protection of the rights of human subjects who take part in research studies. The IRB reviews research in accordance with the Department of Health and Human Services (DHHS) and the US Food and Drug Administration (FDA) regulations.

If your study involves research using human subjects, you likely need IRB approval before you will be able to conduct the study. The federal definitions are as follows:

Research: a systematic investigation, including research development, testing and evaluation, designed to develop or contribute to generalizable knowledge. Activities which meet this definition constitute research for purposes of this policy, whether or not they are conducted or supported under a program

which is considered research for other purposes. For example, some demonstration and service programs may include research activities.

Human subject: a living individual about whom an investigator (whether professional or student) conducting research obtains:

Data through intervention or interaction with the individual, or

Identifiable private information.

A research protocol may qualify for exemption if it meets certain criteria. View the [IRB exempt research categories](#) for the detailed federal list

IRB exempt research categories

The following describes human subjects research that qualifies for exemption from IRB review based on the Federal Register Title 45 § 46.101. IRB exemption status cannot be self-determined. **All exemption determinations are made by the Research Compliance Office. If you believe that your protocol qualifies for exemption, please contact your institution's IRB for submission instructions and guidance.**

Unless otherwise required by department or agency heads, research activities in which the only involvement of human subjects will be in one or more of the following categories are exempt from this policy:

Research conducted in established or commonly accepted educational settings, involving normal educational practices, such as (i) research on regular and special education instructional strategies, or (ii) research on the effectiveness of or the comparison among instructional techniques, curricula, or classroom management methods.

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures or observation of public behavior, unless: (i) information obtained is recorded in such a manner that human subjects can be identified, directly or through identifiers linked to the subjects; and (ii) any disclosure of the human subjects' responses outside the research could reasonably place the subjects at risk of criminal or civil liability or be damaging to the subjects' financial standing, employability, or reputation.

Research involving the use of educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior that is not exempt under paragraph (b)(2) of this section, if: (i) the human subjects are elected or appointed public officials or candidates for public office; or (ii) federal statute(s) require(s) without exception that the confidentiality of the personally identifiable information will be maintained throughout the research and thereafter.

Research involving the collection or study of existing data, documents, records, pathological specimens, or diagnostic specimens, if these sources are publicly available or if the information is recorded by the investigator in such a manner that subjects cannot be identified, directly or through identifiers linked to the subjects.

Research and demonstration projects which are conducted by or subject to the approval of department or agency heads, and which are designed to study, evaluate, or otherwise examine: (i) Public benefit or service programs; (ii) procedures for obtaining benefits or services under those programs; (iii) possible changes in or alternatives to those programs or procedures; or (iv) possible changes in methods or levels of payment for benefits or services under those programs.

Taste and food quality evaluation and consumer acceptance studies, (i) if wholesome foods without additives are consumed or (ii) if a food is consumed that contains a food ingredient at or below the level and for a use found to be safe, or agricultural chemical or environmental contaminant at or below the level found to be safe, by the Food and Drug Administration or approved by the Environmental Protection Agency or the Food Safety and Inspection Service of the U.S. Department of Agriculture.

What happens if I conduct human research without IRB approval?

Conducting human research without IRB approval will place the University out of compliance with Federal requirements that regulate research involving human subjects. This can result in Federal or IRB actions that will prevent you, your department/division, or the University from conducting research involving human subjects. It will also jeopardize the University's human research certification with the Office for Human Research Protections (the FWA).

Data collected without IRB approval cannot be used in class research, theses, or dissertations, which may ultimately prevent students from fulfilling graduation requirements.

Can I start collecting data before I receive official IRB approval?

No. You may enter practice data for the express purpose of testing your data forms, but ***you absolutely may not collect real data for research involving human subjects until you have explicit IRB approval.***

Citing REDCap in your IRB protocol

Below is the recommended REDCap documentation for the Data Management section of your IRB protocol:

"The Research IT Office deployed REDCap (4230 Leavenworth, Omaha, NE) in UNMC Data Center will be used as a central location for data processing and management. Vanderbilt University, with collaboration from a consortium of institutional partners, has developed a software toolset and workflow methodology for electronic collection and management of research and clinical trial data. REDCap (Research Electronic Data Capture) data collection projects rely on a thorough study-specific data dictionary defined in an iterative self-documenting process by all members of the research team with planning assistance from the Center for Health Insights. The iterative development and testing process results in a well-planned data collection strategy for individual studies. UNMC REDCap data transactions are web-based information transmission is encrypted. REDCap was developed specifically around HIPAA-Security guidelines. REDCap has been disseminated for use locally at other institutions and currently supports over 1000 academic/non-profit consortium partners on six continents and over 100,000 research end-users (www.project-redcap.org)."

Initial Project Set-Up

Log into UNMC REDCap (<https://unmcredcap.unmc.edu>) using your UNMC NetId and Password, after successful login, you can start creating new projects

+ Create 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:
Title to be displayed on project webpage

Purpose of this project:
How will it be used?

Assign project to a Project Folder?

Project notes (optional):
Comments describing the project's use or purpose that are displayed on the My Projects page.

Start project from scratch or begin with a template?

- Create an empty project (blank slate)
- Upload a REDCap project XML file (CDISC ODM format) [?](#)
- Use a template (choose one below)

★ **Choose a project template** (comes pre-filled with fields, forms/surveys, and other settings) [+ Add templates \(Administrators only\)](#)

| select template | Template title (sorted by title) | Template description |
|-----------------------|----------------------------------|---|
| <input type="radio"/> | Basic Demography | Contains a single data collection instrument to capture basic demographic information. |
| <input type="radio"/> | Classic Database | Contains six data entry forms, including forms for demography and baseline data, three monthly data forms, and concludes with a completion data form. |
| <input type="radio"/> | Human Cancer Tissue Biobank | Contains five data entry forms for collecting and tracking information for cancer tissue. |
| <input type="radio"/> | Longitudinal Database (1 arm) | Contains nine data entry forms (beginning with a demography form) for collecting data longitudinally over eight different events. |
| <input type="radio"/> | | Contains nine data entry forms (beginning with a demography form) for collecting data on |

Submitting the project request is very simple. You will need to provide a project title and purpose. You have five options for project purpose:

Purpose of this project:
(How will it be used?)

--- Select One --- ▾

--- Select One ---

Practice / Just for fun

Operational Support

Research

Quality Improvement

Other

If this is your first project in REDCap, we recommend selecting “Practice / Just for fun.” This way, you can explore the various functionalities of REDCap and become acquainted with it before implementing a full project. See the [Project types](#) section for more details about the various project types. If you select the Practice option and later decide you would like to turn it into your official project, you may amend the project purpose on the main Project Setup page. Your project’s title can be changed at any point in Development.

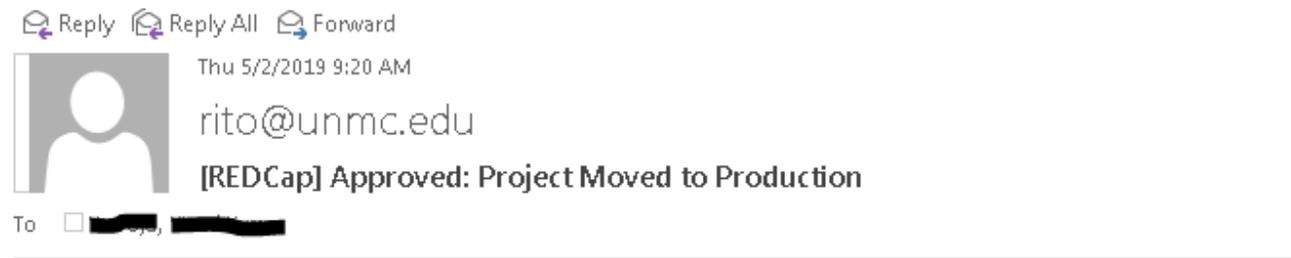
Notice the “Start project from scratch or being with a template?” option. 95% of the time, you will want

to begin your project empty (blank slate) so that you can design it to your exact specifications. However, there are many templates available that have forms designed already, which can be added to and modified to fit your project's needs. This is not the only opportunity you will have to access these general forms: during the process of project design, you may also visit the Shared Library to add template forms to your project. See the [Project templates](#) and [Shared Library](#) sections for more details.

When your request is sent, this message will appear, and we will be able to approve your project so that you may begin. Project approvals will generally be granted within 1-2 business days (24-48 hours) of the request.



Once we approve your project, you will receive an e-mail similar to the one below confirming approval and providing a link to your new project. You can also access the project by simply logging into unmcrcdcap.unmc.edu and clicking the "My Projects" tab.



[This message was automatically generated by REDCap]

The following REDCap project has now been moved to production status, as requested: **Test Project**.

[Access your REDCap project](#)

[TIPS AND TRICKS]:

- If you've completed a consult with us about your study, we will be anticipating your project request, and it will get approved more quickly. In addition, any questions or concerns that we would have about your project will have already been discussed.

Project types

When you first create your project, you will be asked to select a project purpose. You have five options: Practice / Just for fun, Operational Support, Research, Quality Improvement, and Other.

If you choose Practice / Just for fun, you will not be prompted for any additional information. This type is, as the title suggests, intended for practice purposes: to become familiar with the features and learn about REDCap.

Operational Support projects are generally intended for the management and monitoring of a system or technical environment issues. This can include management of an organization, bug report tracking, project tracking, and more.

Quality Improvement projects include projects such as evaluation surveys and suggestion forms. These projects can help channel organizational goals and facilitate performance improvement. If you select Other, you will be prompted to briefly describe the intention of your project. If we have further questions about your project type, we will contact you before approving your project. Selecting Research will prompt many new fields:

Fill out as much as you can before submitting your project request. If you do not have all of the information at the time of your project request, do not worry about it – you can add these details later, as long as they are all completed before launching into Production phase. In fact, we recommend that you wait until after designing your REDCap forms to submit your study to the IRB: this way, you can convert your forms to PDF documents and include them with your IRB submission or other topics that

might be considered “Project Types”, see:

- [Longitudinal studies](#)
- [Survey-based studies](#)
- [Multiple treatment groups \(Arms\)](#)

Project templates

When requesting your project, you will generally want to select the “Create an empty project (blank slate)” option. This will allow you to customize your project to your exact specifications. However, if you would like to select a template to base your project upon, several are available.

Start project from scratch or begin with a template?

Create an empty project (blank slate)
 Upload a REDCap project XML file (CDISC ODM format)
 Use a template (choose one below)

★ **Choose a project template** (comes pre-filled with fields, forms/surveys, and other settings) ➕ Add templates (Administrators only)

| select template | Template title (sorted by title) | Template description |
|-----------------------|----------------------------------|---|
| <input type="radio"/> | Basic Demography | Contains a single data collection instrument to capture basic demographic information. |
| <input type="radio"/> | Classic Database | Contains six data entry forms, including forms for demography and baseline data, three monthly data forms, and concludes with a completion data form. |
| <input type="radio"/> | Human Cancer Tissue Biobank | Contains five data entry forms for collecting and tracking information for cancer tissue. |
| <input type="radio"/> | Longitudinal Database (1 arm) | Contains nine data entry forms (beginning with a demography form) for collecting data longitudinally over eight different events. |
| <input type="radio"/> | | Contains nine data entry forms (beginning with a demography form) for collecting data on |

The templates have varying numbers of data forms, each with a set of pre-specified fields. If you do decide to use a template, new forms/fields can still be added and existing forms/fields can be modified or deleted if you choose. The structure is still very flexible; this can just give you a base upon which to build your project.

If you create an empty project and later decide that you would like to use pre-designed forms, you may access the Shared Library to import forms that other REDCap users have uploaded. The Shared Library has many more options than the project templates. See the [Shared Library](#) section for more details.

Development versus Production modes

You will begin your project in Development mode. This means that you are still in the process of designing and testing your data collection instruments. Everything can be modified freely in Development mode. If you are conducting a research study, your IRB number is not required until you move into Production mode.

Once you feel ready to deploy your project, you may request to have your project placed into Production mode. At this point, you should have fully tested the workflow, data validation and branching logic: you should be certain that your data forms are finalized and fully functional. You should also have your IRB approval number, if applicable. If this was not added to your project when you initially created it, you may add it under “Modify project title, purpose, etc.” on your main project dashboard.

Moving your project to Production prior to collecting real study data ensures you are maintaining data accuracy and integrity. The post production control process provides an additional check to ensure that data in your records is not modified, deleted, or overwritten unintentionally. In addition, it allows us to have a check point

at which we require IRB numbers for validation; otherwise, we would have to require them at the time of project request.

See the [Beyond Development Mode](#) sections for details about other project modes available *after* moving into Production mode.

Designing Data Tools

Online designer

Overview



Not started

[I'm done!](#)

Design your data collection instruments & enable your surveys

Add or edit fields on your data collection instruments (survey and forms). This may be done by either using the Online Designer (online method) or by uploading a Data Dictionary (offline method). You may then enable your instruments to be used as surveys in the Online Designer. Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

Go to [Online Designer](#) or [Data Dictionary](#) Explore the [REDCap Shared Library](#)

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](#)

The Online Designer is the primary tool with which you will design your data forms. Assuming that you started with an empty project (started without using a template), you will see one default form already present in your Online Designer, entitled “My First Instrument.” You may rename this form by clicking the “Rename” button on the right. To begin editing, click on the instrument name.

Project Home
Project Setup
Online Designer
Data Dictionary

Create snapshot of instruments
VIDEO: How to use this page

Last snapshot: 04/26/2019 11:11am

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

Data Collection Instruments

Survey options:

Survey Queue
Survey Login

Survey Notifications

Add new instrument:

Create

 a new instrument from scratch

Import

 a new instrument from the official [REDCap Shared Library](#)

Upload

 instrument ZIP file from another project/user or [external libraries](#)

| Instrument name | Fields | View PDF | Enabled as survey | Instrument actions | Survey-related options |
|---------------------|--------|----------|-------------------|--------------------|---|
| My First Instrument | 5 | | | Choose action | Survey settings Automated Invitations |

By default, your first form will have only one field, entitled “Record ID.” This indicates the unique record/participant identifier, and must be preserved. You may change the name of the field by clicking the Edit icon (the yellow pencil). However, whatever you decide to call it (“Participant ID,” “Study ID,” etc.), its purpose as a unique identifier must remain the same. This field does not need to be repeated for any other data forms throughout the project; this is the only place you will need to be concerned with it.

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

This page allows you to build and customize your data collection instruments one field at a time. You may add new fields or edit existing ones. New fields may be added by clicking the **Add Field** buttons. You can begin editing an existing field by clicking on the **Edit** icon. If you decide that you do not want to keep a field, you can simply delete it by clicking on the **Delete** icon. To reorder the fields, simply **drag and drop** a field to a different position within the form below. NOTE: While in development status, all field changes will take effect immediately in real time. [Are you using Action Tags yet? If not, learn about Action Tags here.](#)

[Return to list of Instruments](#)

Current instrument: **My First Instrument**

[Preview instrument](#)

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](#)

You may click the “Preview Instrument” button to preview what your form will look like during actual data entry. Calculated fields and branching logic will not work in this preview; practice data must be entered in records in order to test those particular functionalities. [Adding a new field](#)

To create a new data field, click the “Add Field” button. There are twelve types of fields you may choose from. Our example in this section will use the “Text Box” field type (essentially a “short answer” field), one of the most common field types in REDCap data entry. The general “new field” addition process is very similar across field types – however, other types may have additional features or nuances associated with them, which is discussed in detail in the [Field types](#) section.

Edit 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, Number, Date/Time, ...)

Field Label

First Name

Variable Name {utilized in logic, calcs, and exports}

first_name Enable auto naming of variable based upon its Field Label?

ONLY letters, numbers, and underscores

How to use [Smart Variables](#) [Piping](#)

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

[Save](#) [Cancel](#)

If you are designing a survey, the Field Label will generally be a question, such as “First Name?” If you are designing a research data entry form, your Field Label may look more like a standard label, such as “Baseline heart rate:”.

The Variable Name is used by REDCap to store the data. We strongly advise against enabling auto-naming for variables (the checkbox to the right of the Variable Name field). You generally want to keep variable names short but somewhat descriptive, so that if you need to export your data, you will be able to recognize key variables. For instance, “Q1” is **not** a very descriptive variable name, and is not advised for most situations. “Height” is a good variable name, but “height_in” or “height_cm” is even better, because you are reiterating your measurement unit within the variable name, which is a good practice.

Validation is an extended option which is discussed in detail in the [Data validation](#) section. The Required option, by default, is set to “no.” If changed to “yes,” it will require an answer before a data form can be saved (or before a survey can be submitted, depending on your study set-up).

The Identifier option should be marked whenever a field asks for one of the 18 HIPAA identifiers. When you export or view deidentified data, the fields that were marked as identifiers will be omitted. A concise list of the 18 HIPAA identifiers is listed below, but for an official list and supporting details, see Box 2 on this page from the CDC website:

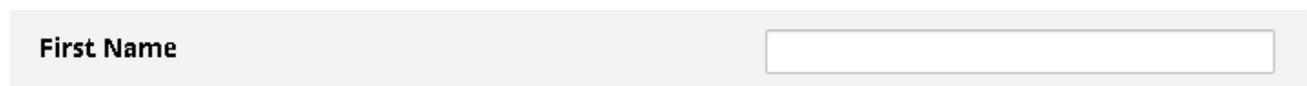
<http://www.cdc.gov/mmwr/preview/mmwrhtml/m2e411a1.htm>

A brief reminder of the 18 HIPAA identifiers: 1.) names, 2.) geography more specific than state, 3.) any relevant dates more specific than year, 4.) phone numbers, 5.) fax numbers, 6.) e-mail addresses, 7.) SSNs, 8.) MRNs, 9.) health plan beneficiary numbers, 10.) account numbers, 11.) certificate/license numbers, 12.) vehicle identifiers, 13.) device identifiers, 14.) URLs, 15.) IP addresses, 16.) biometric identifiers, 17.) full-face photographic images, and 18.) any other unique identifying number, code, or characteristic.

The Custom Alignment option changes how the question (and answers, if the field is a multiple choice option) appears in the data entry screen. We don’t recommend adjusting this unless there is an aesthetic need to do so, but you may play around with the functionality as you explore REDCap’s features.

The Field Note option displays a side-note in small text beneath the text entry field (or multiple choice options) on the data entry screen. It is useful for designating units or clarifying a manner in which the question should be answered (e.g. “Mark all that apply”).

The end result of the field creation in this example looks like this:



The image shows a screenshot of a data entry form. On the left, the text "First Name" is displayed in a bold, black font. To the right of this label is a rectangular text input field with a thin border and a light gray background, which is currently empty.

The Choices component of field creation is specifically for multiple choice field types (drop-down list, radio buttons, and checkboxes). It appears directly below the Field Label and serves as the place for you to list the various choices to select from, one choice per line. REDCap automatically “codes” these variables in increasing order beginning with “1.” This is for data storage purposes, and will not affect the way the choices are viewed in data entry. Below is the screen that will be prompted if you have not provided manual codes for your choices:

Edit 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: Checkboxes (Multiple Answer)

Question Number (optional)
Displayed only on the survey page

Field Label
Is patient taking any of the following medications (check all that apply)

Choices (one choice per line)

- 1, Lexapro
- 2, Celexa
- 3, Prozac
- 4, Paxil
- 5, Zoloft

Action Tags / Field Annotation (optional)

Learn about [@ Action Tags](#) or [using Field Annotations](#)

Raw values for choices were added automatically

The choices listed below did not appear to have a raw value listed but only had a label, so a raw value has been provided for them automatically. If you are not satisfied with these auto generated values, you may change them before saving your changes for this field. The choices in the 'Choices' text box have automatically been modified to reflect these changes. **NOTE: Checkbox fields are not allowed to have a raw value that contains a decimal/period, so if any choices contained a decimal/period, then the choice will have a new auto generated value seen below.**

- 1 was set as the raw value for **Lexapro**
- 2 was set as the raw value for **Celexa**
- 3 was set as the raw value for **Prozac**
- 4 was set as the raw value for **Paxil**
- 5 was set as the raw value for **Zoloft**

Close

Save Cancel

[TIPS AND TRICKS]:

- Generally, it is acceptable to have REDCap provide the automated coded values for your multiple choice options, but there may be instances in which you should manually enter or change the coded values. For instance, let's say you are writing a survey question inquiring about the frequency of a participant's consumption of fast food, and let's say you have decided your choices are "Never," "Once per month or less," "Two to five times per month," and "More than once a week." Since this is a scale with an absolute zero, coding "Never" as 0 and moving upward from there (rather than beginning at 1) is a wise decision.
- If you have many forms, it can be helpful to add a prefix to your field variable names that indicates which form they are on. For instance, a variable representing age in years on your Demographics form might be labeled "dm_age_yrs."
- We strongly advise against numbering your fields within the field label (e.g. "1. How old are you?"). Any branching logic or future decisions to move/delete fields will drop or mix numbers, causing unnecessary work later. The REDCap survey option features auto-numbering and custom numbering abilities, which should be used instead (toward the end of project design).

Field types

There are fourteen types of fields you may choose from: Text Box, Notes Box, Calculated Field, Multiple Choice – Drop-down List, Multiple Choice – Radio Buttons, Checkboxes, Yes-No, True-False, Signature, Slider/Visual

- 1.) Text Box: a single-line text box for text and numbers. The example in the [Adding a new field](#) section is a text box.

A screenshot of a single-line text box. The label "First Name" is on the left. To the right of the text box are two small icons: a help icon (H) and a speech bubble icon.

- 2.) Notes Box: a large text box for a large amount of text. This is convenient for long descriptions and “Additional Comments” boxes.

A screenshot of a large text box. The label "Comments" is on the left. To the right of the text box are two small icons: a help icon (H) and a speech bubble icon. At the bottom right corner of the text box area, there is a button labeled "Expand".

- 3.) Calculated Field: a field which performs real-time calculations based on the entries in other fields. The syntax for complicated calculations can be intricate, but REDCap will alert you to any syntax errors, and will refuse to attempt calculations until they are resolved, preventing data errors. Variable names are referred to in [brackets] in the written calculation equation.

A screenshot of a dialog box titled "Calculation Equation" with a link "How do I format the equation?". Inside the dialog is a text box containing the formula: `round(((weight]*10000)/(((height]^(2)),1)`. Below the text box is a button labeled "Clear calculation".

In this example, weight and height are two variables from previous questions being utilized to calculate Body Mass Index (BMI). Clicking the “How do I format the equation?” hyperlink will open a dialog box describing some of the nuances and specifications of the calculation syntax, such as the rounding function used in this example.

A screenshot of a data entry form with three rows. The first row is "Height (cm)" with a value of 160. The second row is "Weight (kilograms)" with a value of 69. The third row is "BMI" with a value of 27. The BMI field has a red border and a "View equation" button to its right.

In data entry, it is impossible to directly edit the value of a calculated field (hence the red text). This ensures the integrity of the calculation procedure.

- 4.) Multiple Choice – Drop-down List: a drop-down menu with options. Only one option can be selected. This can help save space on a data form if there are many different choices to display.

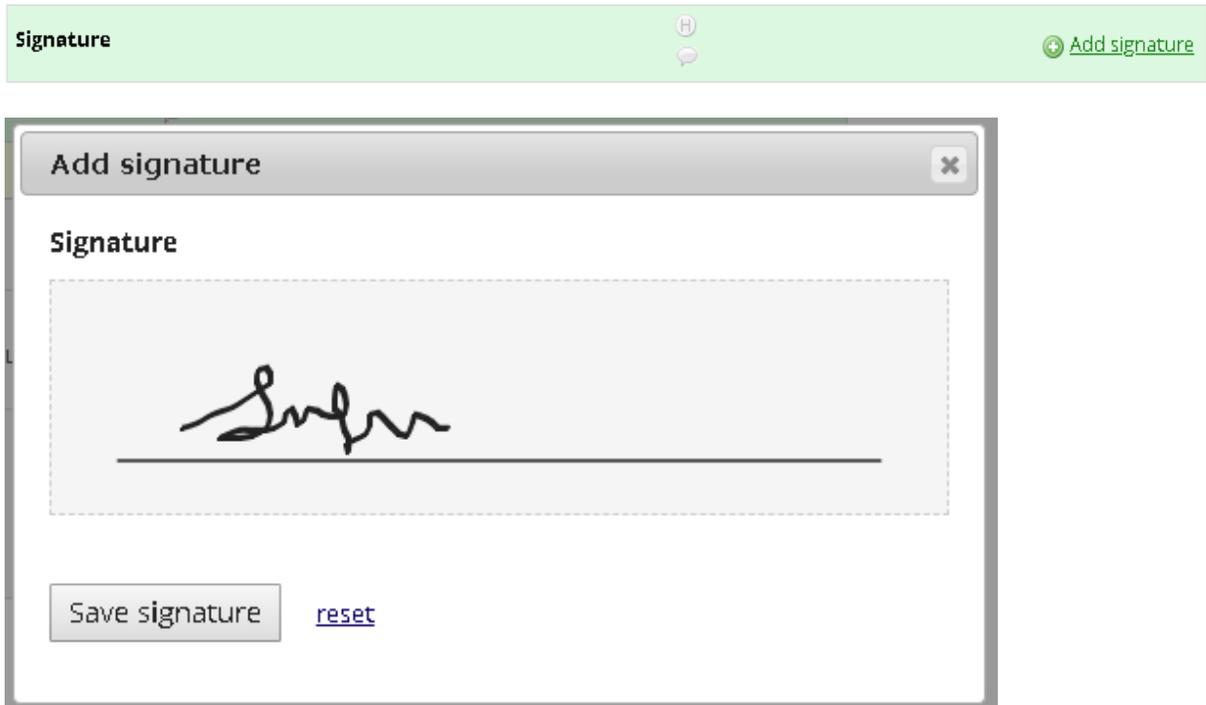
- 5.) Multiple Choice – Radio Buttons: a set of radio buttons (round buttons), from which only one choice can be selected at a time. The “reset” button in the corner removes any current selection and returns the field to a null (absent) value.

- 6.) Checkboxes: checkboxes which allow the selection of multiple options if desired.

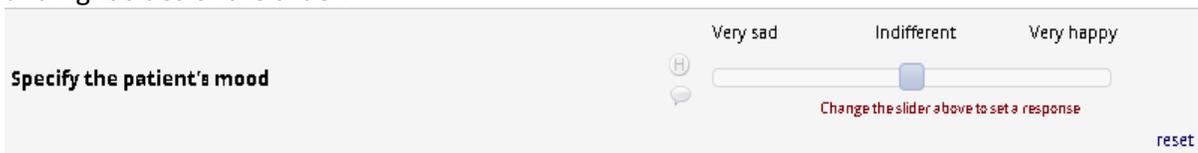
- 7.) Yes-No: radio buttons with the options “Yes” and “No.” These values are automatically coded: “Yes” = 1, “No” = 0.

- 8.) True-False: radio buttons with the options “True” and “False.” These values are automatically coded: “True” = 1, “False” = 0.

- 9.) Signature: Allows a person to draw their signature on a survey or data entry form using a mouse, pen, or finger (depending on whether using a desktop computer or mobile device). Once captured, the signature will be displayed as an inline image on the survey page or data entry form. While this option appears as a "Signature" field type in the Online Designer, it is specified in the Data Dictionary as a "file" type field with validation type of "signature". Thus, it is essentially a special type of File Upload field. Note: The signature image for Signature fields cannot be imported via the API, although they can be downloaded or deleted via the API using the "Export a File" and "Delete a File" API methods, respectively.



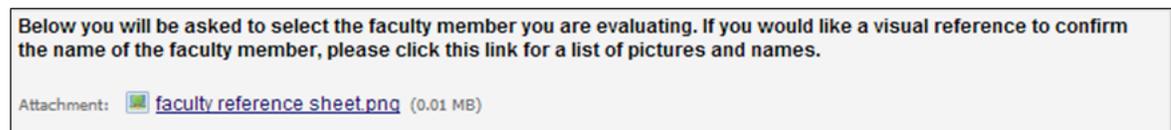
- 10.) **Slider:** visual analogue scale coded as values 0-100. You may provide labels above the left, middle, and right sides of the slider.



- 11.) **File Upload:** an uploading tool for any associated images or documents that may need to be attached to individual records.



- 12.) **Descriptive Text:** text displayed with optional image/file attachment. The file may be displayed as a clickable (downloadable) link, or (if the file is an image) displayed in-line with the text.



- 13.) **Begin New Section:** a field composed of a single line appearing in different color from the rest of your form, indicating separation. This is largely for aesthetic/organization purposes. Adding text (to serve as a header) is optional. When deploying a survey, you have the option to break each section into separate pages, giving these headers a true separation functionality.

| Consent Information | |
|-----------------------------------|---|
| Date subject signed consent | <input type="text"/>  Today Y-M-D <small>YYYY-MM-DD</small> |
| Upload the patient's consent form |  Upload document |
| Contact Information | |
| First Name | <input type="text"/> |
| Last Name | <input type="text"/> |
| Street, City, State, ZIP | <input type="text"/> |

Expand

- 14.) Dynamic SQL Query: A "sql" field allows one to populate a drop-down list on a data entry form or survey by providing an SQL query ("select" queries only) in the Online Designer for a field or in the Select Choices column of the Data Dictionary.

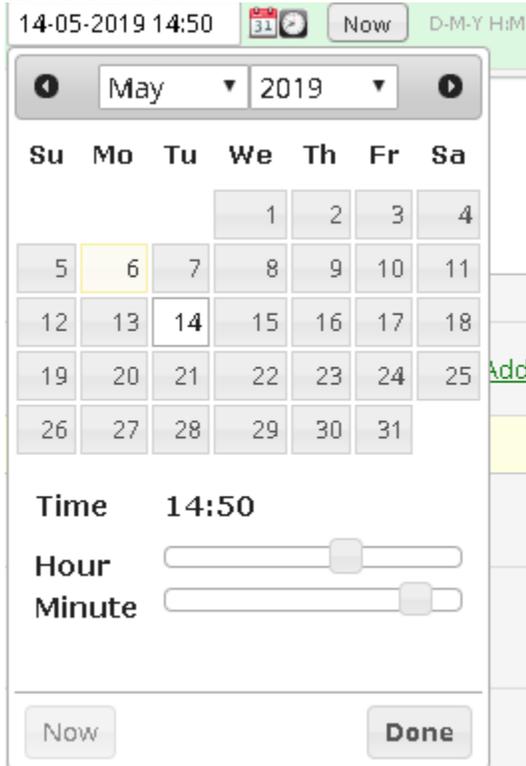
[TIPS AND TRICKS]:

- In your data entry screens (**not** including the survey submission screen), there is a small "H" and speech bubble appearing beside each field. The "H" tracks the history of all recorded data values for that particular variable. The speech bubble is the Field Comment Log, which allows users to make comments on particular fields, and lights up when a comment exists for a field.

Data validation

When using the Text Box method of entry, it is best to ensure that the data coming in is the type of data that you are expecting to see. One method of doing this is by employing the Validation option in the field creation screen. By utilizing this feature, REDCap will prompt an error when a field's entry does not meet certain expectations for data type. There are eleven basic data types that you can designate via the Validation option: date (3 formats), date time (6 formats), e-mail, integer, letters only, MRN, number (5 formats), phone (U.S.), Social Security Number (U.S.), time (2 formats), and ZIP code (U.S.).

- 1.) Date: The three different formats you can specify for date are Day-Month-Year, Month-Day-Year, and Year-Month-Day. Regardless of which type you choose, a small calendar icon will be visible next to the field in data entry which you can utilize to easily specify a date in the appropriate format. You can also click the "Today" icon to automatically fill in the current date.
- 2.) Datetime: Datetime can be recorded with or without a "seconds" count. The three without seconds follow the same formats as the three Date formats (listed above), with an additional H:M to indicate time (Hours:Minutes). The three that do include seconds also follow the same three Date formats, with an additional H:M:S to indicate time (Hours:Minutes:Seconds). Like the Date option, a calendar icon appears next to the field, and in addition, a clock icon appears. You can also click the "Now" icon to automatically fill in the current date and time. An example of usage of the calendar/clock dialog box is below:



- 3.) **E-mail:** To validate an e-mail address entry, REDCap checks for a singular “@” symbol and an appropriate e-mail domain ending (such as “.com” or “.edu”). The inclusion of other special characters that would not be a part of valid e-mail addresses (such as “\$” or “#”) will also prompt a data validation error. This is very widely applicable, however, if you are expecting e-mail addresses connected to new or uncommon domains, we do not recommend using this validation option.
- 4.) **Integer:** Integers include all of the negative and positive whole numbers, plus zero. This means that any decimal or fractional values will prompt a validation error, as well as any values outside the designated minimum-maximum range.
- 5.) **Letters only:** This validation type will only accept English alphabetical characters. It will not accept spaces, numbers, special characters, or accented letters.
- 6.) **Number:** This validation type accepts numbers, including decimal values. The five formats are derived from the number of decimal points you choose to allot: 1, 2, 3, 4, or unspecified. If you choose to specify a number of decimal points, an error will be prompted if that exact number of decimal points is not met. For instance, if you have specified two decimal points, an entry of “3” or “3.0” would not be accepted – only “3.00” is considered a valid entry in this case.
- 7.) **ORCID Number:** This validation type will only accept sixteen numerical digits separated by hyphens in the appropriate ORCID format. Example: 0123-4567-8901-2345.
- 8.) **Phone:** This validation type will only accept a ten-digit U.S. phone number. Not including a valid U.S. area code will prompt an error. It is fairly lenient regarding the input format (spaces, no spaces, hyphens, etc.), but it will change your entry to a standardized “(###) ###-####” format upon field completion.
- 9.) **Time:** This validation type accepts only HH:MM time format. Like the Datetime type, the clock

icon and/or the “Now” icon can be used to assist data entry.

10.) UNMC Cost center: This validation type will accept numerical digits separated by hyphens in the appropriate UNMC cost center format. Example: 12-34-56-7890

11.) ZIP code: Only five- or nine-digit ZIP codes are accepted. Nine-digit ZIP codes must include a hyphen separating the first five from the final four, or an error will be prompted.

[TIPS AND TRICKS]:

- Many of the data validation types include an option for setting minimum and maximum expected values. We strongly encourage users to employ this wherever applicable. For instance, if a field asks for the age of a participant, you may want to set the minimums and maximums around your study eligibility guidelines, such as 16 to 55. If you do not have study eligibility rules, it is still a good practice to set relatively reasonable limits, such as 4 to 120.

Branching logic

If you would like for certain questions to appear only under certain conditions, you may employ the REDCap technique “branching logic” to do so. The easiest way to demonstrate branching logic is by walking through an example. Let’s say you are working in your Online Designer, and you are concerned with these two questions:

The screenshot shows two questions in the REDCap Online Designer interface. The first question, titled "Do you have any interest in learning to use REDCap for future projects that require data collection or surveys?", is a radio button question with three options: "Yes, please!", "No, I would never need data collection or survey tools", and "No, I have a different data collection or survey tool that I prefer". The second question, titled "What data collection or survey tool do you use?", is a text input field. Both questions have "Add Field" and "Add Matrix of Fields" buttons below them. The interface also shows a "reset" button for the first question and a "must provide value" warning for the second question.

You only want that second question to appear if the participant selects “No, I have a different data collection or survey tool that I prefer.” Otherwise, the question does not make much sense in context. Because the appearance of the second question (the variable “which_tool”) is dependent on the answer to the first question (the variable “future_interest”), we call future_interest the **parent (or independent) question** and which_tool the **child (or dependent) question**.

To begin defining your branching logic, click the branching logic icon (the green arrows) on the child *question*. The Branching Logic dialog box will appear. You may use either the Advanced Branching Logic Syntax box or the Drag-N-Drop Logic Builder box. For most branching logic uses, the Drag-N-Drop Logic Builder will be sufficient. We do not recommend using the Advanced Syntax box if you have no experience with computer science or programming syntax. If you have a question which you think may require the Advanced Syntax box, please feel free to contact us for assistance or review of the coding.

Choose method below for the following field: **which_tool** - *What data collection or survey tool do you use?*

Advanced Branching Logic Syntax [\(How do I use the advanced syntax?\)](#)

Show the field ONLY if...

[future_interest] = '2'

— OR —

Drag-N-Drop Logic Builder

Field choices from other fields
(drag a choice below to box on right)

- hear_from = I have heard it talked about on the news or internet (4)
- hear_from = Other (5)
- other_explain = (define criteria)
- future_interest = Yes, please! (1)
- future_interest = No, I would never need data collection or survey t... (0)
- future_interest = No, I have a different data collection or survey t... (2)

Drag and Drop

Show the field ONLY if...

ALL below are true

ANY below are true

future_interest = No, I have a different data collection or survey t... (2) ✘

[Clear logic](#)

Simply drag and drop the appropriate conditions for appearance of the child question, being sure to specify whether you want ANY or ALL of the conditions to be true in order for the child question to appear.

Remember, *branching logic is only employed on the child question*. Since we want our first question to remain static regardless of any other values on the page, we leave it alone.

Implementation:

Survey appearance **before** choosing any option (or with a non-target option selected):

Do you have any interest in learning to use REDCap for future projects that require data collection or surveys?

* must provide value

Yes, please!

No, I would never need data collection or survey tools

No, I have a different data collection or survey tool that I prefer

[reset](#)

If you would like, you may enter your e-mail address here, and we can send you information about getting started with REDCap.

Survey appearance **after** choosing the logic-dependent option:

Do you have any interest in learning to use REDCap for future projects that require data collection or surveys?
 * must provide value

Yes, please!
 No, I would never need data collection or survey tools
 No, I have a different data collection or survey tool that I prefer

reset

What data collection or survey tool do you use?

If you would like, you may enter your e-mail address here, and we can send you information about getting started with REDCap.

[TIPS AND TRICKS]:

- Be sure to thoroughly test any use of branching logic with practice records to ensure that your fields/questions are being displayed exactly as you want them. Recall that the “Preview Instrument” function in the Online Designer will not test branching logic; only actual practice records can do this.
- Try not to include too many conditions in your branching logic. Overuse of branching logic can lead to a higher chance of errors.

Adding a matrix of fields

For some data forms and surveys, the same set of answers may be used for many questions in a row, such as scales indicating frequency or agreement. To fully grasp the “matrix of fields” concept, it may be easier to view an example of a finished implementation before delving into the specifics of the set-up:

| Please indicate the extent to which you agree or disagree with the following statements. | | | | | | |
|--|-----------------------|-----------------------|----------------------------|-----------------------|-----------------------|-------|
| | Strongly agree | Agree | Neither agree nor disagree | Disagree | Strongly disagree | |
| What the instructor expected of me was clear and fair. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | reset |
| The instructor was available to the students. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | reset |
| The course was appropriately challenging to me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | reset |
| The exams reflected the material in the lectures, coursework, and books. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | reset |
| The instructor was well-prepared. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | reset |
| The instructor showed respect for students. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | reset |
| The environment was conducive to learning. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | reset |

Setting up the matrix is essentially writing many questions at once, all of which use the same set of answers. As such, there is only one section to define column choices, but there are many field labels, each with their own variable names and requirement statuses. You may add as many rows as necessary for your matrix.

Matrix Header Text (optional)

Please indicate the extent to which you agree or disagree with the following statements.

Matrix Rows Enable auto naming of variable based upon its Field Label?

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

| Field Label | Variable Name <small>ONLY letters, numbers, and underscores</small> | Required?* | |
|--|--|--------------------------|---|
| What the instructor expected of me was clear and fair. | mtrx_fair | <input type="checkbox"/> | ✘ |
| The instructor was available to the students. | mtrx_available | <input type="checkbox"/> | ✘ |
| The course was appropriately challenging to me. | mtrx_challenging | <input type="checkbox"/> | ✘ |
| The exams reflected the material in the lectures, coursework, and book | mtrx_exams | <input type="checkbox"/> | ✘ |
| The instructor was well-prepared. | mtrx_prepared | <input type="checkbox"/> | ✘ |
| The instructor showed respect for students. | mtrx_respect | <input type="checkbox"/> | ✘ |
| The environment was conducive to learning. | mtrx_environment | <input type="checkbox"/> | ✘ |

[Add another row](#)

Matrix Column Choices

Choices (one choice per line)

1. Strongly agree
2. Agree
3. Neither agree nor disagree
4. Disagree
5. Strongly disagree

[How do I manually code the choices?](#)

Other Matrix Info

Answer Format:

Matrix group name: ONLY letters, numbers, and underscores
 [What is a matrix group name?](#)

There are two answer formats for matrices of fields: Single Answer (Radio Buttons) and Multiple Answers (Checkboxes). For most matrices, Single Answer will be the preferred format.

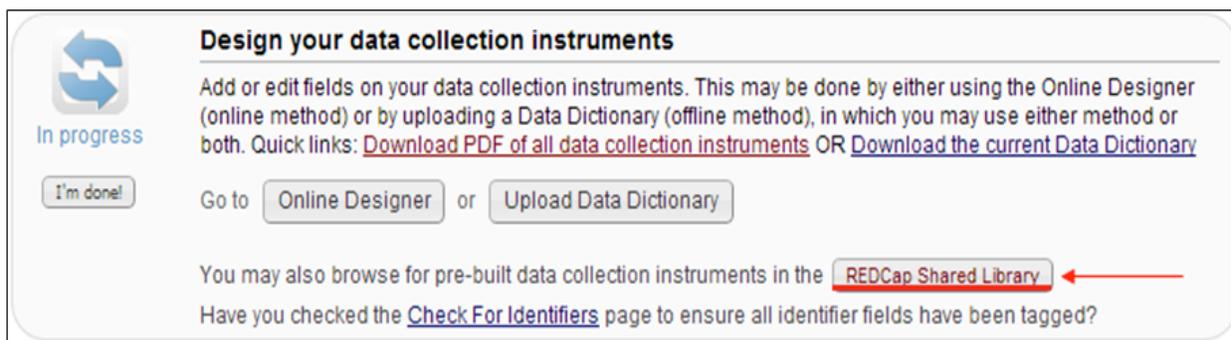
A matrix group name must be provided. Its naming mechanism is similar to the general variable naming mechanism. The group name itself is basically a coded value which ensures that no matter what display platform the matrix goes through, all of the rows will be displayed together in a single matrix.

[TIPS AND TRICKS]:

- When exporting data, it will be easier for your data manager to keep track of matrix fields by assigning each field's variable name the same short prefix, such as "mtrx_" or "eval_".

Shared Library

The Shared Library can be accessed from the home page of your Project Setup.



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](#)

In progress

I'm done!

Go to or

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

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

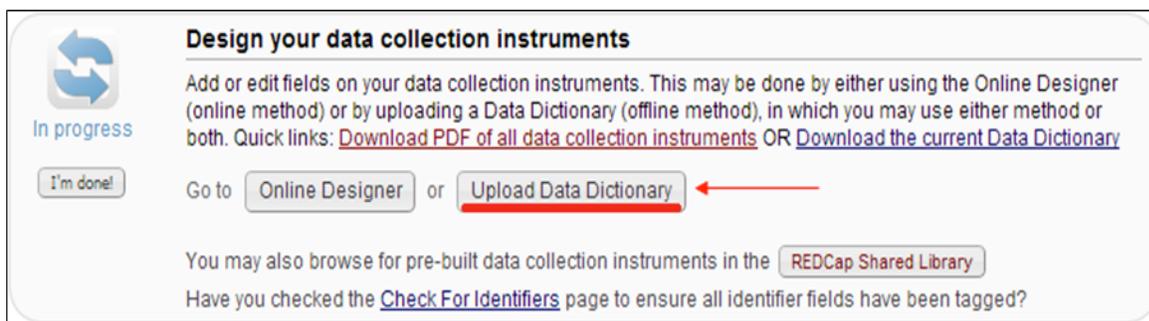
In the Shared Library, you can browse and search through a collection of data entry forms that have been uploaded by other users. Upon finding a form that sounds useful or interesting, you may view it as a web page or PDF and decide whether or not to incorporate it into your project as a new data form. Some forms may want you to agree to a “Terms of Use,” which generally simply requests that you do not claim any of their forms as original works (which is usually rather easy to follow, given that you don’t delete the descriptive text within the form giving details about intellectual property). Not all forms will ask this.

[TIPS AND TRICKS]:

- If you don’t find the results you want from your first search, be sure to search for synonymous and/or related keywords. For instance, if you search “education” and don’t find any relevant results, try “academic” or “school.”

Data Dictionary

For large or repetitive projects, you may need to make large-scale changes to your forms that would be difficult or tedious to perform with the Online Designer. The Data Dictionary is a CSV file version of your project, and serves as an efficient way to make large-scale changes using (usually) Excel.



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](#)

In progress

I'm done!

Go to or

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

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

To begin making changes to your project using the Data Dictionary, click on “Upload Data Dictionary” on the home page of your Project Setup. It will prompt you to download the current Data Dictionary so that you can make changes to it. Here is a sample excerpt from a Data Dictionary (with the columns expanded for readability):

UNMC - Research IT Office

| | A | B | C | D | E | F | G |
|----|-----------------------|---------------------|---------------------------|------------|---|--|-------------------|
| 1 | Variable / Field Name | Form Name | Section Header | Field Type | Field Label | Choices, Calculations, OR Slider Labels | Field Note |
| 2 | study_id | my_first_instrument | | text | Study ID | | |
| 3 | date_enrolled | my_first_instrument | Consent Information | text | Date subject signed consent | | YYYY-MM-DD |
| 4 | patient_document | my_first_instrument | | file | Upload the patient's consent form | | |
| 5 | first_name | my_first_instrument | Contact Information | text | First Name | | |
| 6 | last_name | my_first_instrument | | text | Last Name | | |
| 7 | address | my_first_instrument | | notes | Street, City, State, ZIP | | |
| 8 | telephone_1 | my_first_instrument | | text | Phone number | | Include Area Code |
| 9 | email | my_first_instrument | | text | E-mail | | |
| 10 | dob | my_first_instrument | | text | Date of birth | | |
| 11 | age | my_first_instrument | | calc | Age (years) | rounddown(datediff([dob],'today','y')) | |
| 12 | ethnicity | my_first_instrument | | radio | Ethnicity | 0, Hispanic or Latino 1, NOT Hispanic or Latino 2, Unknown / Not f | |
| 13 | race | my_first_instrument | | dropdown | Race | 0, American Indian/Alaska Native 1, Asian 2, Native Hawaiian or (| |
| 14 | sex | my_first_instrument | | radio | Gender | 0, Female 1, Male | |
| 15 | given_birth | my_first_instrument | | yesno | Has the patient given birth before? | | |
| 16 | num_children | my_first_instrument | | text | How many times has the patient given birth? | | |
| 17 | gym | my_first_instrument | Please provide the patien | checkbox | Gym (Weight Training) | 0, Monday 1, Tuesday 2, Wednesday 3, Thursday 4, Friday | |
| 18 | aerobics | my_first_instrument | | checkbox | Aerobics | 0, Monday 1, Tuesday 2, Wednesday 3, Thursday 4, Friday | |
| 19 | eat | my_first_instrument | | checkbox | Eat Out (Dinner/Lunch) | 0, Monday 1, Tuesday 2, Wednesday 3, Thursday 4, Friday | |
| 20 | drink | my_first_instrument | | checkbox | Drink (Alcoholic Beverages) | 0, Monday 1, Tuesday 2, Wednesday 3, Thursday 4, Friday | |
| 21 | specify_mood | my_first_instrument | Other information | slider | Specify the patient's mood | Very sad Indifferent Very happy | |
| 22 | meds | my_first_instrument | | checkbox | Is patient taking any of the following | 1, Lexapro 2, Celexa 3, Prozac 4, Paxil 5, Zoloft | |
| 23 | height | my_first_instrument | | text | Height (cm) | | |
| 24 | weight | my_first_instrument | | text | Weight (kilograms) | | |
| 25 | bmi | my_first_instrument | | calc | BMI | round(((weight]*10000)/(((height])^(2)),1) | |
| 26 | comments | my_first_instrument | General Comments | notes | Comments | | |

Large-scale changes made easier through the Data Dictionary may include copying many fields (rows) into another form. For instance, if you wanted to copy rows 3 through 13 into another instrument, you would simply highlight rows 3 through 13 in Excel (the *entire* rows), copy, paste into the appropriate position (ensuring you did not paste **over** any other rows), and change the Form Name (column B) to “Contact Info” for the newly pasted rows.

To re-upload the modified Data Dictionary, save the CSV file and re-upload it back in the Upload Data Dictionary window. If REDCap notices any syntax errors it cannot read, it will prompt an error message alerting you to the issue. If there are no errors, it will ask for confirmation, ensuring that you know the new Data Dictionary will **replace** the old Data Dictionary (not append to it).

[TIPS AND TRICKS]:

- Remember, the Data Dictionary does NOT contain any of the information from any of your practice records. Changing information in the Data Dictionary **can** sometimes affect information in the records (deleting fields, for instance), but it will not erase the records or corrupt the data.
- If you are making large-scale changes using the Data Dictionary, it may be helpful to save separate copies of your old Data Dictionary in case you discover any errors later on after uploading it (for instance, if you mistakenly deleted several fields that you did not intend to delete).

Practice Records

An important part of any project, big or small, is the testing phase. Whether you are using surveys or traditional data entry, REDCap allows you to create practice records to test the full functionalities of your forms. This is especially crucial for testing branching logic, calculated fields, and survey appearance (if applicable). For more information about practice records for **surveys**, see the [Survey-based studies](#) section.

Logged in as [redacted]
 Log out

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

Data Collection [Edit instruments](#)

Manage Survey Participants
 - Get a public survey link or build a participant list for inviting respondents

Scheduling
 - Generate schedules for the calendar using your defined events

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

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.

Total records: 3

Choose an existing Study ID: Arm 1: Drug A | .. select record ..

Add new record for the arm selected above

Data Search

Choose a field to search (excludes multiple choice fields): All fields

Search query: [input field]

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

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

Once you are in the main “Add/Edit Records” page, you may choose an existing record to edit, create a new record by typing in a new Record ID, or search for a particular record by a field value (for instance, using the search field “Name” and typing “Jane Doe” into the search query). If you are employing multiple Arms in your study, the first two options sort the records into groups by Arm. To search for a record whose Arm you are not certain of, using the Data Search option is best.

Record Home Page

Record “4” is a new Study ID. To create the record and begin entering data for it, click any gray status icon below.

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. If you wish, you may modify the events below by navigating to the [Define My Events](#) page.

Legend for status icons:

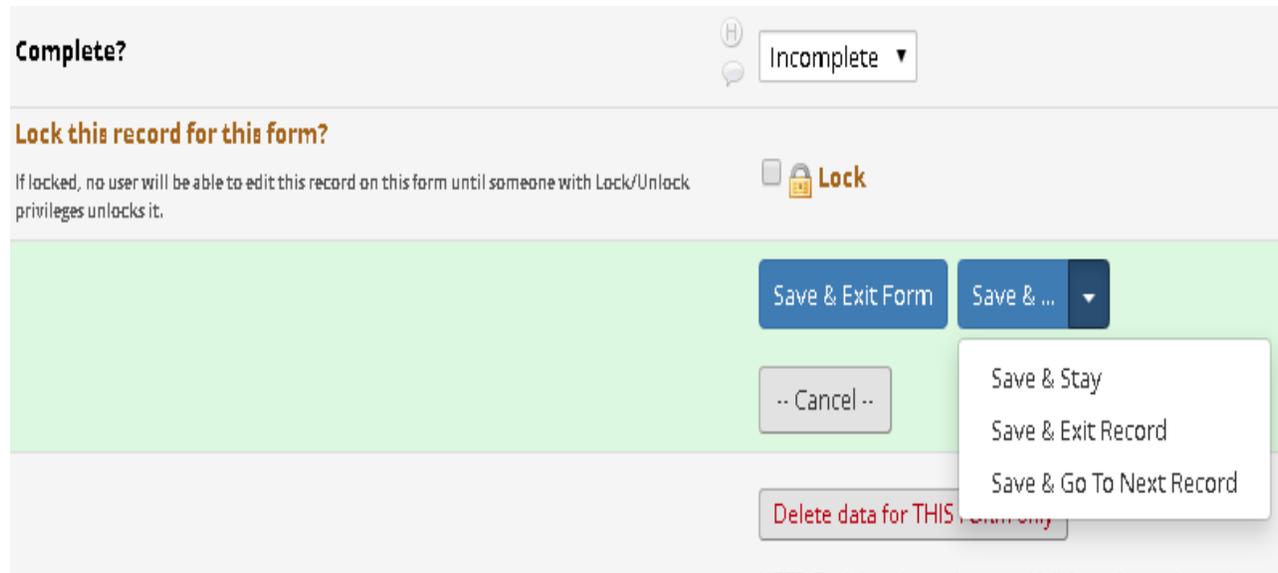
- Incomplete
- Incomplete (no data saved) ?
- Unverified
- Partial Survey Response
- Complete
- Completed Survey Response

NEW Study ID 4

Arm 1: Drug A

| Data Collection Instrument | Enrollment | Dose 1 | Visit 1 | Dose 2 | Visit 2 | Dose 3 | Visit 3 | Final visit |
|----------------------------------|------------|--------|---------|--------|---------|--------|---------|-------------|
| My First Instrument (survey) | | | | | | | | |
| Contact Info | | | | | | | | |
| Baseline Data | | | | | | | | |
| Visit Lab Data | | | | | | | | |
| Patient Morale Questionnaire | | | | | | | | |
| Visit Blood Workup | | | | | | | | |
| Visit Observed Behavior | | | | | | | | |
| Completion Data | | | | | | | | |
| Completion Project Questionnaire | | | | | | | | |

If your study is not employing multiple Events (i.e., if it is not a longitudinal study), your first data entry form will appear immediately, ready for data input. If your study *does* employ multiple Events, you will see a screen similar to the one above. Records are edited one Event at a time; clicking on the first form of an Event and filling it out will lead you through the forms assigned to that specific Event and then return you to this screen. To learn more about longitudinal studies and Events, see the [Longitudinal studies](#) section.



At the bottom of your data entry form, you have the option to mark the form as Incomplete, Unverified, or Complete. Incomplete forms will display a red icon, which is the default status for all forms in a new record; the yellow icon indicates Unverified, and green indicates Complete.

Clicking “Save and Stay” will save your progress and keep you on the current page. Clicking “Save and go to Next Form” will save all data and take you immediately to the next form for that record. Clicking “Save Record” will save all data and return you to the “Add/Edit Records” main page. You may also lock forms for a record to prevent other users from editing existing information.

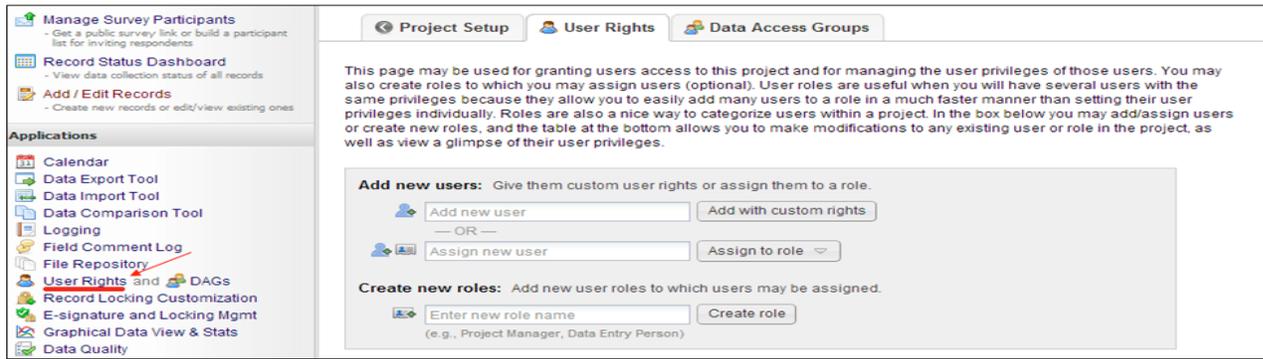
The most important thing to remember about practice records is that they are intended for **practice**. This means that no real data should ever be entered into REDCap while your study is still in Development mode. Real data entry will occur once you deploy your project into Production mode, where your forms are finalized and data is more securely protected.

[TIPS AND TRICKS]:

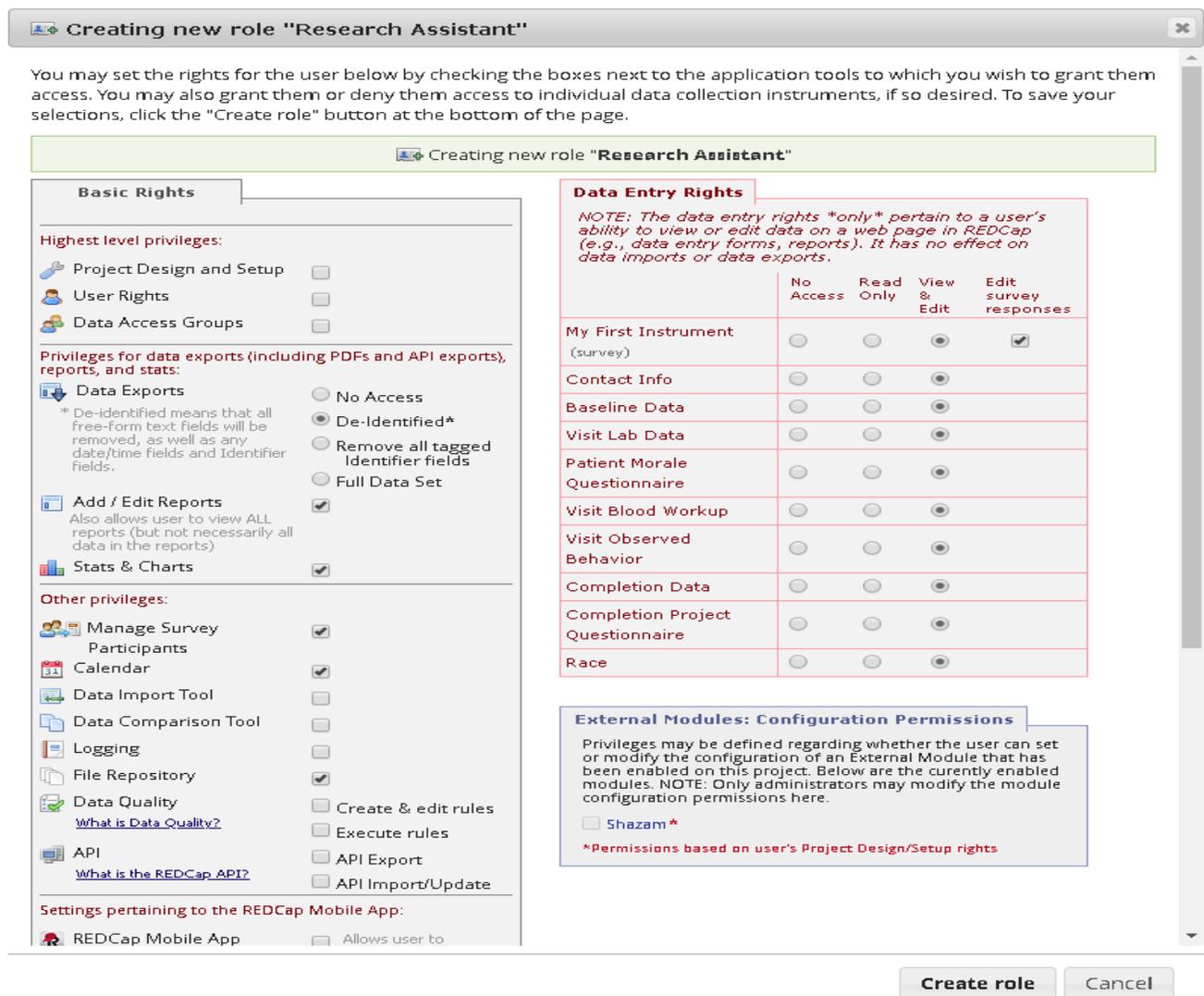
- In your data entry screens (not including the survey submission screen), there is a small “H” and speech bubble appearing beside each field. The “H” tracks the history of all recorded data values for that particular variable. The speech bubble is the Field Comment Log, which allows users to make comments on particular fields, and lights up when a comment exists for a field.

Data Access

User Rights



Clicking on “User Rights” in the toolbar on the left will bring you to a screen displaying the current users on the project, and the rights to which they have access. You may also add new users to your project with customized rights, or create “roles” (such as P.I., Data Manager, or Statistician) with specific rights so that you may assign new users to a role right away. For research teams of 4 or more people, creating roles is recommended.



Being able to customize the access that individuals have to your project ensures that specific roles are

going to be maintained, even if any breaches would be accidental.

[TIPS AND TRICKS]:

- For multi-site studies and other special situations, it may be advantageous to have entire groups of users blinded to entire sets of records. Utilizing the “Data Access Groups” (DAGs) tool is the easiest way to accomplish this. Once the DAGs are created, you may only see records that have been created by another member of your DAG. This tightens security and prevents data overlap.

Logging

By clicking the “Logging” tool in the left-side toolbar, you can view the entire audit trail throughout the life of the project. Each event’s category and specific change is listed along with the time/date and user’s username. The logging box is easily filterable, and can even be downloaded to a singular CSV file if need be.

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 - 20 (Page 1 of 1) ▾

| Time / Date | Username | Action | List of Data Changes OR Fields Exported |
|--------------------|---|--|--|
| 05/02/2019 12:55pm |  | Created Record 1 (Enrollment - Arm 1: Drug A) | date_enrolled = '2019-05-02', first_name = 'Test', last_name = 'Test', address = 'Test', telephone_1 = '(402) 402-1234', email = 'test@unmc.edu', dob = '2001-05-02', age = '17', race = '4', sex = '1', gym(0) = checked, aerobics(1) = checked, eat(2) = checked, drink(3) = checked, drink(4) = checked, my_first_instrument_complete = '0', study_id = '1' |
| 05/02/2019 12:53pm |  | Manage/Design | Erase all data |
| 05/02/2019 12:49pm |  | Manage/Design | Download data dictionary |
| 05/02/2019 11:59am |  | Manage/Design | Create project field |

In the Report Builder application accessible from the left-side toolbar, you may view the results of a specific field or fields for all records in your project. The purpose of various reports can be to isolate records, identify groups, study certain demographics of your participant population, and more. Let's say I want to produce a general demographic report of my participants along with their resting heart rate and BMI. To generate a new report, click the "Report Builder" tool in your left-side menu.

You may create a new report by selecting the fields/variables below that you want to include in the report. You may add as many fields to your report as you wish, and you can choose which users may view this report. You will also need to provide a name for your report, which will then be displayed on the project's left-hand menu for anyone to whom you have given access. You can filter the results returned in the report in a variety of ways, including using complex AND/OR logic. When you are finished, click the Save Report button at the bottom. The new report will then be added to your list of reports, after which you may immediately begin viewing them or exporting them.

Name of Report:

STEP 1

User Access: Choose who sees this report on their left-hand project menu [?](#)

All users – OR – Custom user access (Choose specific users, roles, or data access groups who will have access)

STEP 2

Fields to include in report: [+ Quick Add](#) Add all fields from selected instrument:

| Field # | Field Name | Instrument | Action |
|---------|-----------------------|---------------------------------|---|
| Field 1 | study_id Study ID | Instrument: My First Instrument | <input type="checkbox"/> <input type="checkbox"/> |
| Field 2 | first_name First Name | Instrument: My First Instrument | <input type="checkbox"/> <input type="checkbox"/> |
| Field 3 | last_name Last Name | Instrument: My First Instrument | <input type="checkbox"/> <input type="checkbox"/> |
| Field 4 | - select a field - | Instrument: | <input type="checkbox"/> <input type="checkbox"/> |

Additional fields to include in report (optional)

Include the survey identifier field and survey timestamp field(s)?

STEP 3

Show data for all events for each record returned [?](#)

[How to use filters and AND/OR logic](#)

Filters (optional) Operator / Value

| Filter # | Filter | Operator | Value | Action |
|------------|---|----------|-------|--------------------------|
| 1 | Filter: sex Gender in: Enrollment(Arm 1: Drug A) | = | Male | <input type="checkbox"/> |
| AND | | | | |
| 2 | Filter: - select a field - in: All events | | | |

Switch format: [Use advanced logic](#)

Additional Filters (optional) (Records belonging only to ALL selections below will appear in the report)

Filter by event(s):

- Enrollment (Arm 1: Drug A)
- Dose 1 (Arm 1: Drug A)
- Visit 1 (Arm 1: Drug A)
- Dose 2 (Arm 1: Drug A)
- Visit 2 (Arm 1: Drug A)

Live Filters (optional)

Live Filters can be selected on the report page for dynamically filtering data in real time. Only multiple choice fields can be used as Live Filters (as well as Events, if longitudinal) and Data Access Groups, if any exist.

| | |
|---------------|---|
| Live Filter 1 | <input type="text" value="- select a field -"/> |
| Live Filter 2 | <input type="text" value="- select a field -"/> |
| Live Filter 3 | <input type="text" value="- select a field -"/> |

STEP 4

Order the Results (optional)

| | | |
|----------|-----------------------------------|-----------------|
| First by | study_id Study ID | Ascending order |
| Then by | Type variable name or field label | Ascending order |
| Then by | Type variable name or field label | Ascending order |

Name your report, and specify the variables you would like to the report to display. You may choose to order the results in a specific manner to make data viewing easier. In this example, I have sorted by gender. Once you are finished organizing the details, click “Save Report.”

Clicking “View” next to the title of your report after you have saved it will present the current data report (see below). This is updated in real time as your data is collected. You may export your reports to .CSV or .XML format; you may also simply print your report.

Data Exports, Reports, and Stats

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

 Create New Report
 My Reports & Exports
 Other Export Options
 View Report: Patient Report

Number of results returned: 1

Total number of records queried: 1

(*records' = total available data across all designated events)

 Stats & Charts
 Export Report
 Print Page
 Edit Report

Patient Report

| Study ID | Event Name | First Name | Last Name |
|----------|----------------------------|------------|-----------|
| study_id | redcap_event_name | first_name | last_name |
| <u>1</u> | Enrollment (Arm 1: Drug A) | Test | Test |

Let’s say we only want to view records whose age is greater than equals to 16. To do this, we will utilize the “Filters” in the initial “Create a New Report” page.

You may create a new report by selecting the fields/variables below that you want to include in the report. You may add as many fields to your report as you wish, and you can choose which users may view this report. You will also need to provide a name for your report, which will then be displayed on the project's left-hand menu for anyone to whom you have given access. You can filter the results returned in the report in a variety of ways, including using complex AND/OR logic. When you are finished, click the Save Report button at the bottom. The new report will then be added to your list of reports, after which you may immediately begin viewing them or exporting them.

Name of Report:

STEP 1

User Access: Choose who sees this report on their left-hand project menu ?

All users - OR -
 Custom user access (Choose specific users, roles, or data access groups who will have access)

STEP 2

Fields to include in report [Quick Add](#) Add all fields from selected instrument:

| Field | Field Name | Instrument | Action |
|---------|--|---------------------------------|--------------------------|
| Field 1 | study_id "Study ID" | Instrument: My First Instrument | <input type="checkbox"/> |
| Field 2 | first_name "First Name" | Instrument: My First Instrument | <input type="checkbox"/> |
| Field 3 | last_name "Last Name" | Instrument: My First Instrument | <input type="checkbox"/> |
| Field 4 | <input type="text" value="Type variable name or field label"/> | | <input type="checkbox"/> |

Additional fields to include in report (optional)

Include the survey identifier field and survey timestamp field(s)?

STEP 3

Show data for all events for each record returned ? [How to use filters and AND/OR logic](#)

Filters (optional) **Operator / Value**

| Filter | Operator | Value | Action |
|--|----------|-------|--------------------------|
| Filter 1 age "Age (years)" in All events | > = | 16 | <input type="checkbox"/> |

You will notice that this time, I have specifically indicated that I want to see only the records whose age is >= 16. Below is the result when viewing the report:

[+ Create New Report](#)
[My Reports & Exports](#)
[Other Export Options](#)
[View Report: Patients records above 16 age](#)

Number of results returned: 2

Total number of records queried: 2

(*records' = total available data across all designated events)

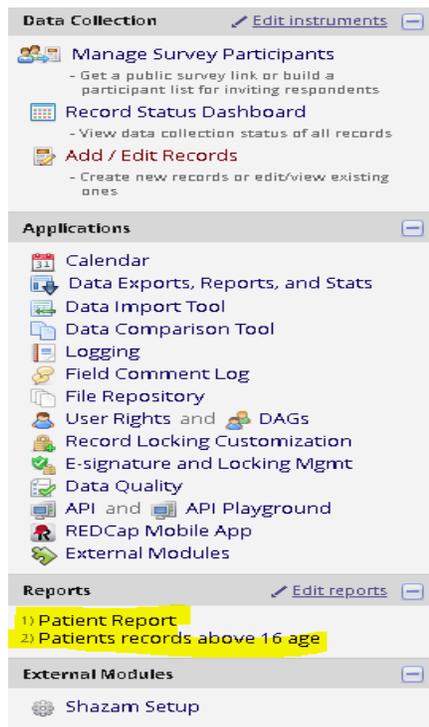
[Stats & Charts](#)
[Export Report](#)
[Print Page](#)
[Edit Report](#)

Patients records above 16 age

| Study ID | Event Name | First Name | Last Name |
|-------------------|----------------------------|------------|-----------|
| study_id | redcap_event_name | first_name | last_name |
| 1 | Enrollment (Arm 1: Drug A) | Test | Test |
| 2 | Enrollment (Arm 1: Drug A) | Testing | Testing |

Notice that although 4 total records were queried, only 2 records matched our conditions, and thus only 2 are shown.

You may have multiple reports that you would like to generate for your project. This is easily tracked through REDCap. Each report is even given its own shortcut in the Reports Module (which will appear once you have created your first report).



Data Collection [Edit instruments](#)

- Manage Survey Participants**
- 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

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

Reports [Edit reports](#)

- 1) Patient Report
- 2) Patients records above 16 age

External Modules

- Shazam Setup

[TIPS AND TRICKS]:

- In the Report Builder, filtering/sorting by fields is easiest for fields that are single-answer multiple choice (drop-down, radio buttons, true/false, yes/no).

- Each report changes in real time as new data records (or surveys) are created for the project. Once more records are completed, you can go back to the same report and it will update accordingly.

Importing data

If you are conducting a study for which you already have some partial data, or if you are simply importing data from an additional source, using the Data Import Tool is one of the easiest ways to accomplish this task. First, you will be prompted to download one of two .CSV templates: one arranging separate records into rows, and another into columns. Whichever you choose may depend on how your other data is already arranged, and/or whichever you aesthetically prefer.

Once you have downloaded the template, use a program (generally Excel) to fill in the records, ensuring that the correct variables are slotted into the correct places. Then, on the same Data Import application page, you may re-upload the .CSV file and import your new data records.

NOTE: This section deals with importing data *records* into your project. For more information on importing your data dictionary (i.e. your data *forms*), see the [Data Dictionary](#) section.

[TIPS AND TRICKS]:

- For ease of data transfer, ensure that the order of the variables is the same on both your external source and your REDCap data forms.

Exporting data

When accessing the Data Export Tool, you can either choose the “Simple Data Export” or “Advanced Data Export” option. If you only want to export certain fields or forms, or if you want to de-identify the data before exporting, select “Advanced Data Export.” If you wish to export all of the data you have access to, “Simple Data Export” is the best route.

Exporting your data “Raw” will export coded values. For instance, in a yes/no field type, data coded in that column will either be “1” or “0” – not “yes” or “no.” In addition, field titles will be the coded versions of the variable names, rather than the field labels. The “Labeled” data option is precisely the opposite – exporting clear, labeled versions rather than coded values. For efficiency and compatibility with statistical analysis tools, we often recommend exporting raw values.

The Data Export Tool is compatible with many analysis programs: Excel, SPSS, SAS, R, and Stata.

 **Data Export Tool**

✔ Data export was successful!

Your files have been created and automatically saved within the File Repository section of this project. You may click the icons below to retrieve the files necessary for importing data into your preferred data viewing or analysis package. After clicking the icon(s) on the right, choose SAVE and specify the desired location on your computer when prompted in order to download each file to your computer. Remember that the files may contain confidential information and should thus be protected.

[RETURN TO PREVIOUS PAGE](#)

| | | Download Syntax & Data |
|---|---|--|
|  | <p>Microsoft Excel</p> <p>You may download the survey results in CSV (comma-separated) format, which can be opened in Excel. You have the choice of downloading the data either with the full headers and answer labels or just with the answer codes (i.e. raw data).</p> <p><i>NOTE: If you are using a version of Microsoft Excel prior to Excel 2007, due to limitations the data will only be read to 255 columns when opened.</i></p> | <p> EXCEL CSV Labels</p> <p> EXCEL CSV Raw</p> <p><input type="checkbox"/> Send file?</p> |
|  | <p>SPSS Statistical Analysis Software</p> <p>Instructions: Download and save all 3 files on the right to a common location. First, double-click on the Pathway Mapper (.bat) file, which will run quickly and invisibly. (If you are not using a Windows operating system, such as Mac or Linux, please see the <i>Additional Instructions</i>.) Now double-click on the *.sps file, which will open SPSS. When the file is loaded and displayed, choose Run-->All from the top menu options. This action will launch the script that will automatically read in all data and manipulate data fields with labels, option values, etc.</p> <p>Additional instructions</p> | <p> SPSS</p> <p> DATA CSV</p> <p> Pathway Mapper</p> <p><input type="checkbox"/> Send file?</p> |
|  | <p>SAS Statistical Software</p> <p>Instructions: Download and save all 3 files on the right to a common location. First, double-click on the Pathway Mapper (.bat) file, which will run quickly and invisibly. (If you are not using a Windows operating system, such as Mac or Linux, please see the <i>Additional Instructions</i>.) Now double-click on the *.sas file, which will open SAS. When the file is loaded and displayed, choose Run (or Run-->Submit) from the top menu options. This action will launch the script that will automatically read in all data and manipulate data fields with labels, option values, etc.</p> <p>Additional instructions</p> | <p> SAS</p> <p> DATA CSV</p> <p> Pathway Mapper</p> <p><input type="checkbox"/> Send file?</p> |
|  | <p>R Statistical Software</p> <p>Instructions: Use command read.csv('filename') to read in data file.</p> | <p> R</p> <p> DATA CSV</p> <p><input type="checkbox"/> Send file?</p> |
|  | <p>STATA Analysis and Statistical Software</p> <p>Instructions: Download both files to common location and double-click on *.do file. This action will launch the script that will automatically read in all data and manipulate data fields with labels, option values, etc.</p> | <p> STATA</p> <p> DATA CSV</p> <p><input type="checkbox"/> Send file?</p> |

[TIPS AND TRICKS]:

- Exporting data to programs other than Excel produce syntax files, which are not always the easiest to deal with. Often, exporting to .CSV and then using your preferred statistical analysis program to import the .CSV is the ideal option. If you do choose this option, to ensure you are getting the data precisely the way you want it, be sure to download one of the .CSV files listed next to "Excel" rather than the one listed next to your program of choice.

Beyond Development Mode

Production Mode



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.



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 ←

Once your project has been created and tested adequately, you may be ready to move to Production mode and begin collecting real data. If your study requires IRB approval, your IRB number must be attached to your project before we will approve the project for Production status. For more information on what must be done in Development before moving to Production, see the [Development vs Production Modes](#) section.

Move Project To Production Status? ✕

Are you sure you wish to leave the DEVELOPMENT stage? If you proceed, the project will be moved to PRODUCTION status so that real data may be collected. If you select the 'Delete ALL data' option below, all current collected data, calendar events, and uploaded documents will be deleted, otherwise all will remain untouched as the project is moved to production.

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

Keep existing data or delete?

Keep ALL data saved so far.

Delete ALL data, calendar events, documents uploaded for records/responses, survey responses (if applicable), and any logging events pertaining to data collection.

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 be auto-approved or else might need to be approved by a REDCap administrator before taking effect.

YES, Move to Production Status
Cancel

By default, moving to Production erases all existing practice records, calendar events, and all other associated practice data. It is a very thorough way to flush all of the practice data out of your project before collecting real data, however, it is optional. Once your project is approved for Production, you will receive an e-mail alerting you to its new status. Now, your project is ready for real data to be collected.



Thu 5/2/2019 9:20 AM

rito@unmc.edu

[REDCap] Approved: Project Moved to Production

To [REDACTED]

[This message was automatically generated by REDCap]

The following REDCap project has now been moved to production status, as requested: **Test Project**.

[Access your REDCap project](#)

Draft Mode

Once you move to Production, changes made to your project are still possible, but the rules are more stringent. There are a few things which you may modify post-Production without significant changes to the data integrity of your project. For instance, you may add new fields or add new choices to existing multiple choice fields. You may **not** make major changes to existing components (such as altering any existing fields or choices) without gaining approval from a REDCap administrator.

To make any changes, a new module will appear at the bottom of your main Project Setup page giving you the option of modifying your project in Draft Mode (NOTE: this may take several minutes to first appear in your project).



Optional

Modify your data collection instruments in Draft Mode

Once in production, you may still modify or add fields to the project, if you desire. 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](#)

Go to or

Once entered into the Online Designer, you will be prompted to ensure that entering Draft Mode is what you intend to do. Once you have clicked "Enable Draft Mode", you may make any necessary changes and submit them for review and approval.

Success!
 The project is now in Draft Mode. When you have finished making changes to your instruments, click the 'Submit Changes for Review' button so that your changes may be approved.

Since this project is currently in **PRODUCTION**, changes will not be made in real time. [Tell me more](#)

Fields to be added: **0** / Total resulting field count: **110**
 Fields to be deleted: **0** / Existing field count: **110**

[Remove all drafted changes](#)
[View detailed summary of all drafted changes](#)

[VIDEO: How to use this page](#)
 Last snapshot: never ?

The Online Designer will allow you to make project modifications to fields and data collection instruments very easily using only your web browser. Below you have the options to modify an existing instrument, delete an instrument, create a new instrument, download an instrument as a PDF document, or reorder your instruments. However, whether in Draft Mode or not, you are allowed to download the PDF or modify survey settings for any instruments below.

Data Collection Instruments

Survey options:

Add new instrument:

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

| Instrument name | Fields | View PDF | Enabled as survey | Instrument actions | Survey-related options |
|---------------------|--------|----------|-------------------|--------------------|---|
| My First Instrument | 25 | | | Choose action ▾ | <input type="button" value="Survey settings"/> <input type="button" value="Automated Invitations"/> |
| Contact Info | 6 | | | Choose action ▾ | |

Once you have made your change(s) to your data form(s), we strongly encourage you to click “View detailed summary of all drafted changes” before submitting your changes for review. In that screen, you will be able to view how many records will be affected by the changes, which modifications may take place immediately (versus which will need administrator approval), and other details about the drafted changes.

Details regarding all changes made in Draft Mode:

- Records in project: **2**
- Fields to be added: **0**
- Fields to be modified: **1**
- Total potentially critical issues: **0**
 - Deleted fields that contain data: **0**
 - Potentially critical issues in modified fields that contain data: **0**
- Total field count BEFORE the changes below are committed: **110**
- Total field count AFTER the changes below are committed: **110**
- Will these changes be automatically approved? **No, an admin will have to review these changes.** ([Administrators: Change how this works](#))

Fields to be ADDED: none
Forms to be ADDED: none
Fields to be DELETED: none
Forms to be DELETED: none

KEY for Comparison Table below

White cell = no change

Yellow cell = field changed (Black text = new value, Gray text = current value)

Green cell = new project field

Below is a listing of the changes to be committed to this project.

| Variable Name | Section Header | Field Type | Field Label | Choices or Calculations | Field Note | Text Validation Type | Text Validation Min | Text Validation Max | Identifier? | Branching Logic | Required Field? | Image/F Attachments |
|---------------|------------------|------------|--------------------------|-------------------------|------------|----------------------|---------------------|---------------------|-------------|-----------------|-----------------|---------------------|
| comments | General Comments | notes | Any Comments Comments | | | | | | | | | |

Any changes that need approval will be pending until your REDCap administrator verifies and approves them. You will be alerted to this approval (or rejection) by e-mail. Once the changes are approved (or rejected), your project will be back in full, official Production status and you have the option to enter Draft Mode again if necessary.

[TIPS AND TRICKS]:

- Communication with your REDCap contact admin is key to ensuring your changes will be approved quickly. Sending a short e-mail describing the reasons behind your changes will help validate your modifications and get them implemented more swiftly.

Inactive Mode

Inactive Mode is only available once a project is already in Production Mode; it is not available in Development. Under the “Other Functionality” tab in your project’s home page, you may move the project to an inactive status. This is ideal for a point in time where you would like to stop any incoming data entry, but you would still like to export and analyze the records you have collected. Accordingly, Inactive Mode will restrict data collection and any project setup changes, leaving record access and data analysis intact for all existing records.

The screenshot shows the REDCap project management interface. At the top, there are five navigation tabs: "Project Home" (with a home icon), "Project Setup" (with a list icon), "Other Functionality" (with a folder icon), "Project Revision History" (with a circular arrow icon), and "Edit project settings" (with a gear icon). Below the tabs are three informational panels:

- 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 documentation](#).

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.

Current number of tokens: 0
- Copy or Back Up the Project**

[Copy the project](#)

[Download metadata only \(XML\)](#)

[Download metadata & data \(XML\)](#)

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.

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

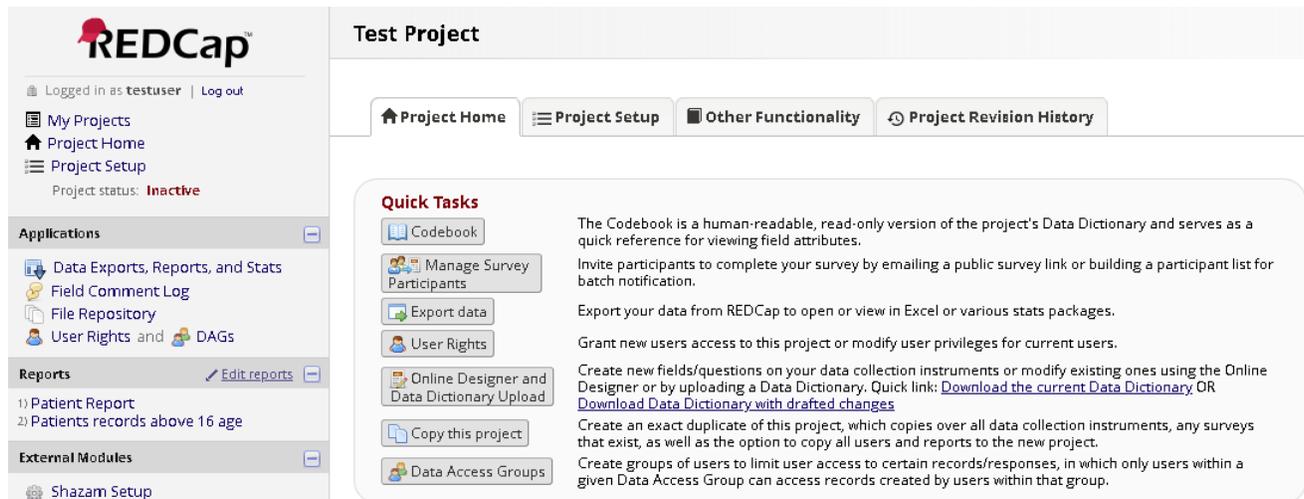
NOTE: The exported XML file does *not* contain the project's logging history (audit trail), but if you wish to obtain it, you may freely download it any time at the top of the Logging page.
- Project Management**

[Move to inactive status](#)

Move the project to inactive status if data collection is complete. This will disable most project functionality, although all collected data will remain intact. Once inactive, the project can be moved back to production status at any time.

Your project will still be accessible from your main “My Projects” page, but you will see a new red

“Inactive” icon next to it. Once you enter the project, you will notice that there is now limited functionality. Not all of the modules from previous modes appear in your left-side menu, and your project status is explicitly listed as “Inactive.”



To move your project back into Production, simply click the “Other Functionality” tab and click “Move to production status.” Since your project was already previously approved for Production, it does not need approval a second time; it will be immediately placed back into Production.

Archived Mode

Once you are finished with a project, you may either delete it or archive it. We recommend archiving your projects rather than deleting them, in case you would like to perform any follow-up studies in the future. Unlike Inactive Mode, a project can be moved into Archived Mode whether it is in Development **or** Production status. You may even move a project into Archived Mode directly from Inactive Mode.

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

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 documentation](#).

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.

Copy or Back Up the Project

[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.

[Download metadata only \(XML\)](#)[Download metadata & data \(XML\)](#)

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

NOTE: The exported XML file does *not* contain the project's logging history (audit trail), but if you wish to obtain it, you may freely download it any time at the top of the Logging page.

Project Management

[Request delete project](#)

You may completely remove this project, in which all its data will be permanently deleted also.

[Move to inactive status](#)

Move the project to inactive status if data collection is complete. This will disable most project functionality, although all collected data will remain intact. Once inactive, the project can be moved back to production status at any time.

[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.

Once a project is moved to Archived Mode, a toggle will appear at the bottom of your projects listed in the main “My Projects” home page (“Show/Hide Archived Projects”). By default, archived projects will be hidden from your “My Projects” list, but toggling it to “Show” will enable you to access the project. Like Inactive Mode, limited data access abilities are still available. To move your project back into Production, simply click the “Other Functionality” tab and click “Move to production status.”

Specific Study Designs

Longitudinal studies

Projects that use a longitudinal design may track records over a series of multiple events. Different data collection forms can be associated with different events; in addition, the same form can be utilized over multiple events. For instance, a Demographics form may only need to be completed at the very first event, while a Lab Results form may be required at each event.

In order to utilize the longitudinal study features of REDCap, you must have enabled the use of longitudinal data collection in your “Main project settings” options on your Project Setup home page.

Project status: Development Completed steps 1 of 8

Main project settings

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

Use longitudinal data collection with defined events?

Once you have enabled the user of longitudinal data collection, a new module will appear in your main Project Setup page so that you may define your events.

Define your events and designate instruments for them

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

Go to or

When defining your events, be sure to title each event and specify the “Days Offset” from the initial event. Your first event’s “Days Offset” should be 0.

Arm 1: Drug A

Arm 2: Drug B

+Add New Arm

Arm name: **Drug A**

[Rename Arm 1](#) | [Delete Arm 1](#)

| | Event # | Event Name | Custom Event Label {optional} | Unique event name {auto-generated} |
|---|---------|--|--|------------------------------------|
|   | 1 | Enrollment | | enrollment_arm_1 |
|   | 2 | Dose 1 | | dose_1_arm_1 |
|   | 3 | Visit 1 | | visit_1_arm_1 |
|   | 4 | Dose 2 | | dose_2_arm_1 |
|   | 5 | Visit 2 | | visit_2_arm_1 |
|   | 6 | Dose 3 | | dose_3_arm_1 |
|   | 7 | Visit 3 | | visit_3_arm_1 |
|   | 8 | Final visit | | final_visit_arm_1 |
| <input type="button" value="Add new event"/> | | <input type="text"/> <small>Descriptive name for this event</small> | <input type="text"/> <small>Custom Event Label (optional) Example: [visit_date], [weight] kg</small> | |

This page is also where you are able to define your study’s Arms. If you have multiple treatment groups or multiple sample populations, you may want to utilize this feature. Arms can be customnamed, and do not necessarily need to have the same forms/events as other Arms. This can allow you to easily group/block records. A single record may not belong to more than one Arm.

Once you have defined your events (and Arms, if applicable), you must now designate forms for your events. To do this, click the “Designate Instruments for My Events” tab and “Begin Editing” to assign forms to your defined events. In a longitudinal design, each form must be attached to at least one event. If there are data entry forms which have been created within your project but are not attached to any events whatsoever, your REDCap administrator will assume this is an error and will not approve the project for Production status until it is corrected.

[Project Setup](#)
[Define My Events](#)
[Designate Instruments for My Events](#)

Since you have defined multiple events on the [Define My Events](#) page, you may now select which data collection instruments that you wish to utilize for each event by using the table below. This allows you to enter data on any data collection form multiple times for any given project record. Any and all data collection instruments can thus be used for any event defined.

Click the [Begin Editing](#) button to change the relationships below by designating which forms you wish to utilize for which events. When you are finished making changes, click the [Save](#) button to finalize your changes.

Upload or download instrument mappings ▾

[Arm 1: Drug A](#)
[Arm 2: Drug B](#)

Arm name: **Drug A**

[Begin Editing](#)
[Save](#)

| Data Collection Instrument | Enrollment {1} | Dose 1 {2} | Visit 1 {3} | Dose 2 {4} | Visit 2 {5} | Dose 3 {6} | Visit 3 {7} | Final visit {8} |
|----------------------------------|-------------------|---------------|----------------|---------------|----------------|---------------|----------------|--------------------|
| My First Instrument | ✓ | | | | | | | |
| Contact Info | ✓ | | | | | | | |
| Baseline Data | ✓ | | | | | | | |
| Visit Lab Data | | | ✓ | | ✓ | | ✓ | |
| Patient Morale Questionnaire | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ |
| Visit Blood Workup | | | ✓ | | ✓ | | ✓ | ✓ |
| Visit Observed Behavior | | | ✓ | | ✓ | | ✓ | ✓ |
| Completion Data | | | | | | | | ✓ |
| Completion Project Questionnaire | | | | | | | | ✓ |

[TIPS AND TRICKS]:

- See the [Calendar/Scheduling](#) section for information on how to automatically add scheduled Events to the Calendar module.

Survey based studies

In order to utilize the survey features of REDCap, you must have enabled the use of surveys in your “Main project settings” options on your Project Setup home page.

Main project settings

Use longitudinal data collection with repeating forms? [?](#)

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

Complete!

Not complete?

Once this is enabled, a new module in your left-side menu will be available: “Manage Survey Participants.” Upon entering this module for the first time, you will be prompted to enable at least one of your existing data collection forms as a survey. There are many customizable survey settings that you will be prompted to confirm, which you may edit later by clicking the “Survey settings” option next to the

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form on the front page of your Online Designer.

Once you have enabled a data form as a survey and you have navigated to the Manage Survey Participants module, you will see three tabs: Public Survey Link, Participant List, and Survey Invitation Log.

The Public Survey Link is a singular URL to your survey, which does not track IP addresses, e-mail addresses, or any other identifying information. This means that any person with that survey link can take the survey multiple times if need be. While this is an optimal feature for some surveys, it is not the best option for projects in which we must ensure that no participant has taken the survey more than one time. New records that are created by survey submissions appear in your existing records in auto-numbered order and are labeled only by the date/time of submission.

The Participant List tab will enable you to send out a pool of e-mails to participants from REDCap. Each e-mail will contain a unique URL that is only valid for one submission. To add the e-mail addresses of your participants to the participant list, click “Add participants” and type in the e-mail addresses, one per line. This will only create your pool of participant e-mail addresses; no e-mails have been sent out by the completion of this step. This is in case you would like to send the surveys out in batches rather than all at one time. To actually begin sending out the survey e-mails, click the “Compose Survey Invitations” button.

Send a Survey Invitation to Participants

Info
Survey title: My First Instrument
Event: Enrollment (Arm 1: Drug A)

When should the emails be sent?
 Immediately
 At specified time: [] [] M/D/Y H:MM
The time must be for the time zone America/Chicago, in which the current time is 05/02/2019 14:45.

Enable reminders
 Re-send invitation as a reminder if participant has not responded by a specified time?

Compose message
From: [redacted]@unmc.edu
To: [All participants selected from Participant List]
Subject: []
Compose Preview Send test email
Please take this survey.
You may open the survey in your web browser by clicking the link below:
[survey-link]
If the link above does not work, try copying the link below into your web browser:
NOTE: You may modify or remove any text you wish in the Compose Message text box above. Make sure you include either [survey-link] or [survey-ur] in the text or else the participant will not have a way to take the survey.
You may use HTML formatting in the email message: bold, <u> underline, <i> italics, link, etc.
[How to use Piping in the survey invitation](#)

Participant List Actions: -- check/uncheck participants --
(those who have not responded completely)

| <input type="checkbox"/> | Email (0 selected) | Participant Identifier | Scheduled? | Sent? | Responded? |
|--------------------------|--------------------|------------------------|------------|--------------------------|--------------------------|
| <input type="checkbox"/> | abc@unmc.edu | | - | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | tester@unmc.edu | | - | <input type="checkbox"/> | <input type="checkbox"/> |
| <input type="checkbox"/> | testuser@unmc.edu | | - | <input type="checkbox"/> | <input type="checkbox"/> |

Send Invitations Cancel

You may designate the time at which the e-mails are sent out, the subject of the e-mail, any additional content or comments of the e-mail invitation, and the checklist of participants to whom you would like to send the e-mail.

Later, once you return to the Manage Survey Participants module (see below), you will see the list of participants along with a sent/unsent status regarding the e-mail invitation, and a status checking whether or not the participant has responded. If Participant Identifiers are not enabled, there is **no** way to link an individual's e-mail address to a particular record, maintaining survey anonymity. If necessary for your records, you may export the participant list as a .CSV file.



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). Note: All survey responses collected are considered anonymous unless you 1) are using Participant Identifiers or 2) have enabled the designated email field for invitations. [More details](#)

| Participant List belonging to [Initial survey] "My First Instrument" - Enrollment (Arm 1: Drug A) | | | | | | | | |
|---|--------|----------------------------------|------------|-----------------------|------------------|------|--------------------------------|------------------------|
| Email | Record | Participant Identifier Enable | Responded? | Invitation Scheduled? | Invitation Sent? | Link | Survey Access Code and QR Code | |
| [No email listed] | | Disabled | | - | | | | |
| [No email listed] | | Disabled | | - | | | | |
| abc@unmc.edu | | Disabled | | - | | | | remove |
| tester@unmc.edu | | Disabled | | - | | | | remove |
| testuser@unmc.edu | | Disabled | | - | | | | remove |
| ██████████@unmc.edu | | Disabled | | - | | | | |

The Survey Invitation Log (not pictured) allows you to sort your participant list with various filters and view some finer details (such as the time at which a survey invitation was sent out to a participant). Individual times at which survey invitations should be sent out (if the invitation to a participant is not already sent) can be modified here.

[TIPS AND TRICKS]:

- We do not recommend enabling multiple data collection forms as surveys if **all** surveys will be sent to **all** participants. If there is concern about survey length, the best solution is to divide groups of questions into sections with section headers (a field type) in the Online Designer and setting the Question Display Format as “One section per page” in your Survey Settings.
- If you have a long list of e-mail addresses separated by some punctuation other than line breaks, using the “Replace” feature (Windows shortcut Ctrl-H) in a program such as Word or Notepad++ will easily fix this formatting so that you can paste the list into REDCap. For instance, if your e-mail addresses are separated by “;” (semicolon space), in the Replace window of Microsoft Word, simply have the program find “;” and replace with “^l” (carat lowercase-L). (In Notepad++, line breaks are specified with “\n” rather than “^l”.)
- If there is another e-mail address you would like to have the survey e-mails come from (besides the main e-mail address associated with your account), you may click the “From:” drop-down box in the “Compose Survey Invitations” window and add an additional e-mail address to your account. This e-mail address must be verified via a verification e-mail before it can be utilized in this manner.
- If a survey contains study-qualifying information in a multiple-choice field, you may choose to end a survey prematurely when certain qualifications are (or are not) met by using the Stop Action icon in the Online Designer (the red stop sign). This will prevent you from gathering unnecessary

data, and save time for the survey-taker. For instance, if your question is “What is your role at UNMC?” and you want the survey to continue for everyone who isn’t a student, you may click the Stop Actions icon and select to stop the survey at that point for the “Student” response.

Multiple treatment groups (Arms)

When you have multiple treatment groups in your study, there are two primary ways to handle this in REDCap:

Create a field in your data form which identifies which treatment group the record belongs to and use the Report Builder to organize the data groups accordingly.

Enable longitudinal data collection methods, *even if the study is not longitudinal*, so that you may utilize the “Arms” feature. This specific use of the “Arms” feature is discussed below. See the [Longitudinal studies](#) section for more general information on Arms.



Arm name: **Drug A**

[Rename Arm 1](#) | [Delete Arm 1](#)

| | Event # | Event Name | Custom Event Label {optional} | Unique event name {auto-generated} |
|---|---------|-------------|-------------------------------|------------------------------------|
| | 1 | Enrollment | | enrollment_arm_1 |
| | 2 | Dose 1 | | dose_1_arm_1 |
| | 3 | Visit 1 | | visit_1_arm_1 |
| | 4 | Dose 2 | | dose_2_arm_1 |
| | 5 | Visit 2 | | visit_2_arm_1 |
| | 6 | Dose 3 | | dose_3_arm_1 |
| | 7 | Visit 3 | | visit_3_arm_1 |
| | 8 | Final visit | | final_visit_arm_1 |
| <div style="display: flex; align-items: flex-start;"> <div style="margin-right: 10px;"> <input type="button" value="Add new event"/> </div> <div style="flex-grow: 1;"> <input style="width: 100%; height: 20px; margin-bottom: 5px;" type="text"/> <small>Descriptive name for this event</small> </div> <div style="flex-grow: 1;"> <input style="width: 100%; height: 20px; margin-bottom: 5px;" type="text"/> <small>Custom Event Label (optional) Example: [visit_date], [weight] kg</small> </div> </div> | | | | |

You can see in this example that we are able to use the Arms feature of the longitudinal design to easily group records. Even in the Manage Survey Participants module, Arms are fully taken into consideration. View the screen caps below for examples of REDCap’s Arm sorting and distinguishing.

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.

To obtain the survey link, copy the URL below and paste it into the body of an email message in your own email client. Your email recipient(s) can then click the link to begin taking your survey.

The survey link below applies only to **"My First Instrument" - Enrollment (Arm 1: Drug A)** ▼

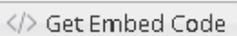
Public Survey URL: **"My First Instrument" - Enrollment (Arm 1: Drug A)**

"My First Instrument" - Enrollment (Arm 2: Drug B)

Link Actions

-  Open public survey
-  Open public survey + Log out
-  Send me URL via email
-  Survey Access Code or QR Code

Link Customizations

-  Get Short Survey Link
-  Create Custom Survey Link
-  Get Embed Code

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.

Total records: 3

| | | |
|-----------------------------|-----------------|---------------------------|
| Choose an existing Study ID | Arm 1: Drug A ▼ | -- select record -- ▼ |
| | Arm 1: Drug A | |
| | Arm 2: Drug B | or the arm selected above |

Note that when exporting data, it is not possible to export each Arm's data separately, however, a record's Arm is listed as the second-column variable (immediately after Record ID), making it very easy to distinguish between the groups and separate the initial .CSV file into multiple files.

Additional Features of REDCap

Calendar/Scheduling

| Day | Week | Month | Agenda | | | |
|--|---------------------------|---------------------------|-------------------------------|-------------------------------|----------|----------|
| << March 2014 >> Print Calendar | | | | | | |
| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
| | | | | | | + New 1 |
| + New 2 | + New 3 | + New 4 Design Meeting | + New 5 | + New 6 | + New 7 | + New 8 |
| + New 9 | + New 10 | + New 11 | + New 12 1 - Initial Visit | + New 13 | + New 14 | + New 15 |
| + New 16 | + New 17 1 - Follow-Up | + New 18 | + New 19 | + New 20 2 - Initial Visit | + New 21 | + New 22 |

The calendar feature of REDCap allows you to keep track of events related to your project/study, with the option of associating each event with a record. In the above example, three of the events are attached to specific records, while the Design Meeting is not. Various viewing modes are available for the calendar, and you may print the calendar as well.

Another feature of the Calendar module is the Scheduling module, which is available for longitudinal studies only. The Scheduling module can be seen by enabling both the “Use longitudinal data collection with repeating forms?” option and the “Scheduling module (longitudinal only)” option.

Main project settings
 Complete! Disable Use longitudinal data collection with repeating forms? [?](#) ← 1
 Enable Use surveys in this project? [?](#) [VIDEO: How to create and manage a survey](#)
[Not complete?](#)

Design your data collection instruments
 In progress
 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](#)
 Go to or
 You may also browse for pre-built data collection instruments in the
 Have you checked the [Check For Identifiers](#) page to ensure all identifier fields have been tagged?

Define your events and designate instruments for them
 In progress
 Create events for re-using data collection instruments and/or set up scheduling.
 Go to or

Enable optional modules and customizations
 Optional
 Disable Auto-numbering for records [?](#)
 Disable Scheduling module (longitudinal only) [?](#) ← 2
 Enable Randomization module [?](#)
 Enable Designate an email field to use for invitations to survey participants [?](#)

Once both of those options are enabled, a new “Scheduling” tool will appear in the left-side menu. Assuming that you have already set up your Events with the correct “days offset” specifications (see the [Longitudinal studies](#) section), adding new Record IDs will automatically generate a schedule to add to the calendar with all events accordingly booked for that record. You may also generate a schedule for the remaining events on any existing record.

Data Collection [Edit instruments](#) **Scheduling** [VIDEO: How to use this page \(6 min\)](#)

The Schedule Generator will allow you to **generate a new schedule** based upon your Events and their Days Offset that have been defined on the [Define My Events](#) page. You may generate a schedule for a new or existing Record ID below by selecting a Start Date, which will be used as the starting point for projecting schedule dates using your Days Offset. Once scheduled, you may then view it on the [Calendar](#), after which, if desired, you may also perform data entry for that calendar event. You may create a new project record here while performing scheduling or you may choose a currently existing one that has not yet been scheduled.

Add new Record ID: OR

Start Date:

Select Arm:

Graphical Data View & Stats

This module takes aggregate data from your data set (organized by data form) and automatically generates relevant plots and simple statistical analyses. It is a useful tool for data overview and evaluation. You can choose to view only the plots, only the statistics, or both. In the example below, I have chosen to view only the statistics. Total responses, missing values, and count frequencies for individual responses are listed. When viewing the plots, you may choose between viewing them either as bar charts or pie charts.

All data (all records and fields)

| DISPLAY OPTIONS | |
|---|---|
| Select a data collection instrument to view | My First Instrument ▼ |
| Optional: Select a record to overlay onto the plots below | -- select record -- ▼ |
| Viewing options: | <input type="button" value="Show plots & stats"/> <input type="button" value="Show plots only"/> <input type="button" value="Show stats only"/> |

Date subject signed consent (date_enrolled)

| Total Count (N) | Missing |
|-----------------|----------|
| 3 | 0 (0.0%) |

First Name (first_name)

| Total Count (N) | Missing |
|-----------------|----------|
| 3 | 0 (0.0%) |

Last Name (last_name)

| Total Count (N) | Missing |
|-----------------|-----------|
| 2 | 1 (33.3%) |

File Repository

The File Repository module contains all of the data exports that have been performed on your data set. In addition, users may upload relevant files for other users to download and/or utilize.

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.

| Filter by file type: ALL ▾ | | Action |
|--|--|--------|
| Faculty Reference Sheet File name: faculty_reference_sheet.png Date uploaded: 03/30/2014 File size: 0.4 KB | | |

Field Comment Log

When entering data into a data form, you may have comments or caveats concerning specific fields. If this is the case, you may utilize the Field Comment Log. To first create your comment, click the speech bubble next to the field in the record you are working on. Enter your comment and click “Save.” You will notice that the speech bubble icon is now lit, indicating that a comment exists for that field.

| | |
|---------------------------------|---|
| Last Name | <input type="text" value="Test"/> |
| Street, City, State, ZIP | <input type="text" value="Test"/> |
| Phone number | <input type="text" value="(402) 402-1234"/> <small>Include Area Code</small> |

Expand

To view the collective comments for all records, click the Field Comment Log module in the left-side toolbar. Comments are linked to their corresponding records, along with the user who made the comment, and the date/time at which the comment was made. You may sort through the comments with various filters, as well as export the comment log to a .CSV file.

Field Comment Log

This page displays the Field Comment Log for all records/events/fields in this project. You may use the controls below to perform keyword searches in the comments as well as filter the comments by record, event, field, or data access group. Keep in mind that if you do not have user privileges to view some data collection instruments, then comments for any fields on those instruments will not be displayed in the table. Also, if you belong to a data access group, then you will only see results for records that belong to your group. The entire Field Comment Log is downloadable as a file in Excel/CSV format.

Field Comment Log Filters: All records for All events

Results returned: 1

All fields
All users
Keyword search [Search tips](#)

| Click button to view comment log | Record | Field | Comments |
|----------------------------------|---------------------------------|---------------------------------------|--|
| 1 comment | 1 Enrollment (Arm 1: Drug A) | address (Street, City, State, ZIP) | [REDACTED] (05/02/2019 3:33pm): "May not be up to date" |

Data Quality

Running a check in the Data Quality module can help you keep track of invalid or missing data across fields. You may execute each “rule” in the pre-made list (as well as create your own) and check for discrepancies such as missing values and data validation errors. I have run a few of them in the example below. As you can see, while I do not have any data validation errors, there are 82 total missing values among my records, which (depending on the fields that are missing) can cause problems in advanced data analysis.

Data Quality Rules ✔ Processing Complete! Execute rules:

Apply to:

| Rule # | Rule Name | Rule Logic (Show discrepancy only if...) | Real-time execution <input type="checkbox"/> | Total Discrepancies | Delete rule? |
|------------------------------------|--|---|--|---|--------------|
| A | Missing values* | - | | 70 view | |
| B | Missing values* (required fields only) | - | | 0 view | |
| C | Field validation errors (incorrect data type) | - | | 0 view | |
| D | Field validation errors (out of range) | - | | 0 view | |
| E | Outliers for numerical fields (numbers, integers, sliders, calc fields)** | - | | 0 view | |
| F | Hidden fields that contain values*** | - | | 0 view | |
| G | Multiple choice fields with invalid values | - | | 0 view | |
| H | Incorrect values for calculated fields | - | | 0 view | |
| <input type="button" value="Add"/> | <input style="width: 100%;" type="text"/> Enter descriptive name for new rule (e.g., Participants below age 18) | <input style="width: 100%;" type="text"/> Enter logic for new rule (e.g., [age] < 18) How do I use special functions? | <input type="checkbox"/> | Execute in real time on data entry forms <input type="checkbox"/> | |

FAQ

Note: Many of the FAQs below stem directly from the Vanderbilt REDCap “Help & FAQ” section. We

chose to include only those that we felt were the most important and relevant to the general purposes of our clients. For Vanderbilt's full FAQ, see the "Help & FAQ" module inside unmcredcap.unmc.edu.

Q: How much experience with programming, networking and/or database construction is required to use REDCap?

No programming, networking or database experience is needed to use REDCap. Simple design interfaces within REDCap handle all of these details automatically.

It is recommended that once designed, you have a statistician review your project. It is important to consider the planned statistical analysis before collecting any data. A statistician can help assure that you are collecting the appropriate fields, in the appropriate format necessary to perform the needed analysis.

Q: How should I cite REDCap for the Data Management section of my IRB submission?

We do have recommended documentation; see the [Citing REDCap in your IRB protocol](#) section of our REDCap Walkthrough.

Q: What is the Record Status Dashboard?

This is a table listing all existing records/responses and their status for every data collection instrument (and for a longitudinal project, for every event). When viewing this page, form-level privileges are utilized (i.e. a user cannot see a form's status if the user does not have access to that form), and if the user belongs to a Data Access Group, they will only be able to view the records that belong to their group.

Q: How do I enter / view my data?

To enter or view individual records, you can navigate to the "Data Collection" section on the left menu bar. Depending on your project type, you will see "Add or View Survey Responses", a listing of your form names, or a "Data Entry" icon. Use the drop down record lists so you can select or add a new record/response.

Use the Report Builder tool to view your data. The Report Builder tool serves as the search engine of a REDCap database. The Report Builder queries the database in real time and displays the resulting data in table format. Variables are listed in columns and individual records are displayed in rows.

Use the Graphical View & Stats tool to view your data. The Plots tab displays graphical representations for all numerical and categorical variables and provides links for cleaning notable data (missing, highest, lowest values). The Descriptive Stats tab displays descriptive statistics for all variables.

Q: Can I upload files to attach to individual subject records?

Yes, you can upload documents for individual records. To create a new document upload field in the Data Dictionary for any given REDCap project, set the Field Type = 'file.' You may add as many 'file' fields as needed to your data collection instruments. Documents can be uploaded and downloaded by navigating to the record's data entry page and clicking the file link. A document can be deleted at

any time, and there is no limit to how many times the document can be replaced by uploading another file to that record's file upload field. On the other hand, REDCap has file size limit (100 MB).

Q: Do I need to select the record number again each time I change data entry forms?

No. To navigate between forms within a given record, select the colored dots indicating form status (i.e. incomplete, unverified, and complete) which appear to the left of the form name when a record is open. Note that moving to a new form by selecting the form status indicator will close the current form without saving entries. In order to save entries, select the "Save and continue" button located at the bottom of the form before using the form status indicators to move to a new form. Alternatively, you can select the "Save and go to Next Form" button if you wish to move to the next form for the current record.

Q: What are the risks of modifying a database that is already in Production?

Altering a database that is in Production can cause data loss. If a Production database must be modified, follow these rules to protect your data:

Do not change existing variable names, or data stored for those variables will be lost. To restore data that has been lost in this way, revert to previous variable name(s).

Do not change existing form names via a data dictionary upload, or form completeness data will be lost. Form names may be changed within the Online Designer without data loss.

Do not modify the codes and answers for existing dropdown, radio, or checkbox variables; or existing data will be lost or confused. It is only acceptable to add choices to a dropdown, radio, or checkbox field.

Q: When exporting data from REDCap into SPSS, will the variable codes that you've defined be automatically imported into SPSS (for ex 1, Female 2, Male)?

Yes. REDCap uses the metadata you have defined in your data dictionary to create syntax files for SPSS, SAS, R, and Stata. The Data Export tool includes instructions for linking the exported syntax and data files. Note that SPSS has several variable naming conventions:

The name MUST begin with a letter. The remaining characters may be any later, digit, a period or the symbols #, @, _, or \$

Variable names cannot end with a period

The length of the name cannot exceed 64 bytes (64 characters)

Spaces and special characters other than the symbols above cannot be used

No duplicate names are acceptable; each character must be unique

Reserved keywords cannot be used as variable names (ALL, AND, BY, EQ, GE, GT, LE, LT, NE, NOT, OR, TO, and WITH)

Q: How do I import data from another source?

Data from another source can be imported using the Data Import Tool (most commonly used) or the API (Application Programming Interface).

The Data Import Tool requires that data to be imported is in CSV (comma separated variables) format. The order of the fields or the number of fields being imported does not matter, except that the record identifier (e.g., Subject ID) must be the first field.

Q: How do I import longitudinal data?

The Data Import Tool requires you to use the “redcap_event_name” column when importing data. You must specify the event name in the file using the unique “redcap_event_name.” You can upload multiple event data per subject.

The unique “redcap_event_name”s are listed on each project's Define My Events page.

You can insert this field after the unique identifier as the second column or you can add it to the end of your import spreadsheet (last column).

Additional Resources

Links:

UNMC REDCap: <https://unmcredcap.unmc.edu/>

REDCap Training Videos: <https://redcap.vanderbilt.edu/consortium/videos.php>

Research IT Office (RITO) Web site: <http://info.unmc.edu/vcr/rito>

Contacts:

[REDCap Support Team: rito@unmc.edu](mailto:rito@unmc.edu)

[Ashok Mudgapalli, RITO Director](#)

[Vinod Kumar Yarroju, REDCap support Admin](#)