

EMBO Practical Course

Phenotyping neurological syndromes for systems genetics

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CRF design using REDCap

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Outline

- REDCap introduction
- Terminology and how to navigate the REDCap interface
- Basic study design
- Report building
- Data export and import
- Privacy and security features



Introduction

“REDCap is a secure web application for building and managing online surveys and databases.

[....]

it is specifically geared to support online or offline data capture for research studies and operations.”

Background on

- **2004:** Initially developed and deployed at Vanderbilt U. Medical Center by Paul Harris
- **2006:** REDCap system was offered to other institutions and a consortium of domestic and international users was formed
- **Today (9/2018):**
 - >3000 active institutional partners in 127 countries
 - >580k projects with over >780k users

Beth Israel Deaconess Medical Center
Duke University
Kent State University
Northwestern University
Oregon Health & Science University
Stanford Univ. School of Medicine
University of Colorado-Denver
University of Pennsylvania
UW Seattle

Cornell University
The Cleveland Clinic
Columbia University
Mayo Clinic
Partners HealthCare (2009)
Stony Brook University
University of New Mexico
University of Minnesota
Vanderbilt University

Children's Hospital Boston
Case Western Reserve University
University of Cincinnati/Cincinnati Children's Hospital
Medical University of South Carolina
Singapore Clinical Research Institute
The Methodist Hospital Research Institute
The University of Kansas Medical Center
University of Massachusetts Medical School
Yale University

Background on REDCap™ (2)

Research Electronic Data Capture

- Free for not-for-profit partners (license agreement with Vanderbilt U)
- REDCap Cloud for commercial entities
- Web-based application
- Simplified methodology for building projects
- Feature rich

Technical Details

- For **end-users**, most web-browsers are compatible:
 - IE, Firefox, Safari, Chrome, Opera
- **Server side:**
 1. Web server with PHP (e.g. Apache or IIS) that has the PEAR package installed
 2. MySQL database server
 3. Email server

Home



Home

My Projects

+ New Project

? Help & FAQ

Send-It

Messenger

Logged in as
embo.user1

My Profile

Log out

Welcome to REDCap!

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

REDCap provides automated export procedures for seamless data downloads to Excel and common statistical packages (SPSS, SAS, Stata, R), as well as a built-in project calendar, a scheduling module, ad hoc reporting tools, and advanced features, such as branching logic, file uploading, and calculated fields.

Learn more about REDCap by watching a 🎥 [brief summary video \(4 min\)](#). If you would like to view other quick video tutorials of REDCap in action and an overview of its features, please see the [Training Resources](#) page.

NOTICE: If you are collecting data for the purposes of human subjects research, review and approval of the project is required by your Institutional Review Board.

If you require assistance or have any questions about REDCap, please contact [REDCap Administrator \(123-456-7890\)](#).

REDCap Features

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

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

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

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

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

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

REDCap Mobile App - Collect data offline using an app on a mobile device when there is no WiFi or cellular connection, and then later sync data back to the server.

Password Recovery

Set Up Password Recovery Question ✕

To help you easily and quickly recover your REDCap password (in case you forget it in the future), we need you to select a security question of your choice below and then provide an answer for it. Once you have filled out this information, if you forget your password, you can click the 'Forgot Your Password?' link on the REDCap login screen, and it will ask you to provide a correct answer to your security question (the one you will select below). In such a case, it will send a new temporary password to the email address associated with your REDCap account. Setting up your password recovery question below will prevent you from having to wait on a REDCap administrator to reset it manually if you ever forgot your password.

NOTICE: It is highly recommended that you set your password recovery question now, or else you might get accidentally locked out of your REDCap account.

Select a question:

Provide answer to question: (not case sensitive)

Please confirm your email address:

(If you attempt to recover your password, your new password will be sent to this email address.)

Save

[Not now. Remind me again in 2 days.](#)

My Projects



Home

My Projects

+ New Project

Help & FAQ

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My Profile

Log out

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

| My Projects | | Organize | | Filter projects by title | | |
|---|---------|----------|------------|--------------------------|--------|--|
| Project Title | Records | Fields | Instrument | Type | Status | |
| EMBO Course Project - User1 | 0 | 2 | 1 form | | | |

REDCap 8.7.0 - © 2018 Vanderbilt University

User Rights

REDCap™

Logged in as **embo.user1** | Log out

- My Projects
- Project Home or Project Setup
- REDCap Messenger

Project status: **Development**

Data Collection [Edit instruments](#)

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

Show data collection instruments

Applications

- Calendar
- Data Exports, Reports, and Stats
- Data Import Tool
- Data Comparison Tool
- Logging
- Field Comment Log
- File Repository
- User Rights and DAGs**
- Record Locking Customization
- E-signature and Locking Mgmt
- Data Quality

Help & Information

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

[Contact REDCap administrator](#)

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EMBO Course Project - User1

Project Home

Project Setup

Other Functionality

Project Revision History

Project status: Development

Completed steps **0** of **7**



Not started

Main project settings

Enable

Use surveys in this project? [?](#)

[VIDEO: How to create and manage a survey](#)

Enable

Use longitudinal data collection with defined events? [?](#)

I'm done!

Modify project title, purpose, etc.



Not started

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). Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

I'm done!

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



Optional

Enable optional modules and customizations

Enable

Repeatable instruments [?](#)

Disable

Auto-numbering for records [?](#)

Enable

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

Enable

Randomization module [?](#)

Enable

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

I'm done!

Additional customizations

User Rights (2)

EMBO Course Project - User1

[Project Home](#)[Project Setup](#)[User Rights](#)[Data Access Groups](#)

This page may be used for granting users access to this project and for managing the user privileges of those users. You may also create roles to which you may assign users (optional). User roles are useful when you will have several users with the same privileges because they allow you to easily add many users to a role in a much faster manner than setting their user privileges individually. Roles are also a nice way to categorize users within a project. In the box below you may add/assign users or create new roles, and the table at the bottom allows you to make modifications to any existing user or role in the project, as well as view a glimpse of their user privileges.

Add new users: Give them custom user rights or assign them to a role.



— OR —



Create new roles: Add new user roles to which users may be assigned.



(e.g., Project Manager, Data Entry Person)

| Role name (click role name to edit role) | Username or users assigned to a role (click username to edit or assign to role) | Expiration (click expiration to edit) | Project Design and Setup | User Rights | Data Access Groups | Data Export Tool | Reports & Report Builder |
|---|--|--|--------------------------|-------------|--------------------|------------------|--------------------------|
| Data Entry | embo.usertest1 (Usertest1 EMBO) | never | ✘ | ✘ | ✘ | ✘ | ✓ |
| Project Management | embo.user1 (User1 EMBO) | never | ✓ | ✓ | ✓ | Full Data Set | ✓ |
| | roomp_luxparktest (Kirsten Roomp) | never | | | | | |

User Roles

Editing existing user role "Data Entry "
✕

You may set the rights for the user below by choosing which rights to grant them access. You may also grant them or deny them access. To save your selections, click the "Save Changes" button.

Basic Rights

Role name:

Highest level privileges:

- Project Design and Setup
- User Rights
- Data Access Groups

Privileges for data exports (including PDFs and API exports, reports, and stats):

- Data Exports
 - No Access
 - De-Identified*
 - Remove all tags and Identifier fields
 - Full Data Set
- Add / Edit Reports
Also allows user to view ALL reports (but not necessarily all data in the reports)
- Stats & Charts

Other privileges:

- Calendar
- Data Import Tool

Other privileges:

- Calendar
- Data Import Tool
- Data Comparison Tool
- Logging
- File Repository
- Data Quality
 - Create & edit rules
 - Execute rules
- API
 - API Export
 - API Import/Update

Settings pertaining to the REDCap Mobile App:

- REDCap Mobile App
Allows user to collect data offline in the mobile app
- Allow user to download data for all records to the app?

Settings pertaining to project records: [Explain these settings](#)

- Create Records
- Rename Records
- Delete Records

Settings pertaining to record locking and E-signatures:

- Record Locking Customization
- Lock/Unlock Records
 - Disabled
 - Locking / Unlocking
 - Locking / Unlocking with E-signature authority
- Allow locking of all forms at once for a given record?

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Online Designer

REDCap™

Logged in as **embo.user1** | Log out

- My Projects
- Project Home or Project Setup
- REDCap Messenger

Project status: **Development**

Data Collection [Edit instruments](#)

- Record Status Dashboard
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- Add / Edit Records
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Show data collection instruments

Applications

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- User Rights and DAGs
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- E-signature and Locking Mgmt
- Data Quality

Help & Information

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

[Contact REDCap administrator](#)

EMBO Course Project - User1

Project Home

Project Setup

Other Functionality

Project Revision History

Project status: Development

Completed steps **0** of **7**



Not started

Main project settings

Enable

Use surveys in this project? [?](#)

[VIDEO: How to create and manage a survey](#)

Enable

Use longitudinal data collection with defined events? [?](#)

I'm done!

Modify project title, purpose, etc.



Not started

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). Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

I'm done!

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](#)



Optional

Enable optional modules and customizations

Enable

Repeatable instruments [?](#)

Disable

Auto-numbering for records [?](#)

Enable

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

Enable

Randomization module [?](#)

Enable

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

I'm done!

Additional customizations

Set up project bookmarks (optional)

Online Designer (2)

Project Home


Project Setup

Online Designer

Data Dictionary

Create snapshot of instruments

Last snapshot: never ?


 [VIDEO: How to use this page](#)

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

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 | Instrument actions |
|----------------------------|--------|---|--------------------|
| My First Instrument | 1 |  | Choose action ▾ |

Online Designer (3)

Ready to add fields

You may now begin adding fields to your data collection instrument below using the Online Designer. Alternatively, you may build your fields in the Data Dictionary (offline method) by clicking its tab above.


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](#)

Variable/Field Types

Add New Field

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

Field Type:

- Select a Type of Field ----
- Text Box (Short Text, Number, Date/Time, ...)
- Notes Box (Paragraph Text)
- Calculated Field
- Multiple Choice - Drop-down List (Single Answer)
- Multiple Choice - Radio Buttons (Single Answer)
- Checkboxes (Multiple Answers)
- Yes - No
- True - False
- Signature (draw signature with mouse or finger)
- File Upload (for users to upload files)
- Slider / Visual Analog Scale
- Descriptive Text (with optional Image/Video/Audio/File Attachment)
- Begin New Section (with optional text)

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Text Box

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
Date of Birth

Variable Name (utilized in logic, calcs, and exports)
dm_dob Enable auto naming of variable based upon its Field Label?
ONLY letters, numbers, and underscores

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

Action Tags / Field Annotation (optional)
Learn about [@ Action Tags](#) or [using Field Annotation](#)

Validation? (optional)
Date (Y-M-D) ▼
Minimum: 1900-01-01
Maximum:

– 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)?

Save

Cancel

Multiple Choice

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: Multiple Choice - Radio Buttons (Single Ans ▾)

Field Label

Choices (one choice per line) [Copy existing choices](#)

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

Action Tags / Field Annotation (optional)

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

Variable Name (utilized in logic, calcs, and exports)

 Enable auto naming of variable based upon its Field Label?
ONLY letters, numbers, and underscores

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

Required?* No Yes
* Prompt if field is blank

Identifier? No Yes
Does the field contain identifying information (e.g., name, SSN, address)?

Custom Alignment ▾
Align the position of the field on the page

Field Note (optional)
Small reminder text displayed underneath field

Calculation

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: Calculated Field

Field Label

BMI

Calculation Equation [How do I format the equation?](#)

$$\frac{[\text{anthrop_weight}] * 10000}{([\text{anthrop_height}] * [\text{anthrop_height}])}$$

[Clear calculation](#)

Test calculation with a record: -- select record --

Action Tags / Field Annotation (optional)

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

Variable Name (utilized in logic, calcs, and exports)

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

ONLY letters, numbers, and underscores

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

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) Calculated field (kg/m2)
Small reminder text displayed underneath field

Save Cancel

`round(number,decimal places)`
`round((calculation),decimal places)`

Ontology

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

Diagnosis

Action Tags / Field Annotation (optional)

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

Variable Name (utilized in logic, calcs, and exports)

dm_diagnosis 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

HP - Human Phenotype Ontology ▾

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) https://biportal.bioontology.o
Small reminder text displayed underneath field

Save **Cancel**

Branching Logic

Add/Edit Branching Logic

Branching Logic may be employed when fields/questions need to be hidden under certain conditions. If branching logic is defined, the field will only be visible if the conditions provided are true (i.e. show the field only if...). You may specify those conditions in the text box below for the Advanced Branching Logic Syntax or by choosing the Drag-N-Drop Logic Builder method, which allows you to build your logic in a much easier fashion by simply dragging over the options you want. You may switch back and forth between each method if you wish, but please be aware that since the advanced logic allows for greater complexity, it may not be able to be switched over to the Drag-N-Drop method if it becomes too complex.

Choose method below for the following field: **dm_retired_year - Retired which year**

Advanced Branching Logic Syntax How to use [Branching Logic](#) [Smart Variables](#)

Show the field ONLY if...

[dm_retired] = '1'

[Clear logic](#)

Test logic with a record: -- select record -- ▾

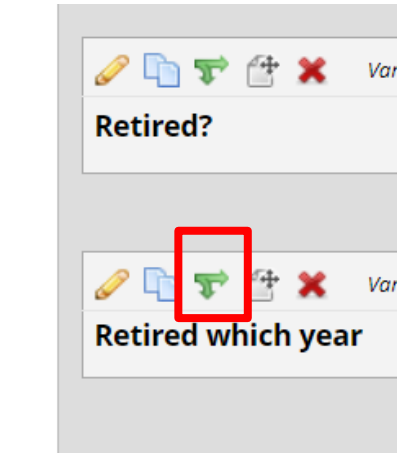
— OR —

Drag-N-Drop Logic Builder

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

Show the field ONLY if...

- ALL below are true
- ANY below are true




Longitudinal

Project Home

Project Setup

Other Functionality

Project Revision History

Project status:  Development

Completed steps **0** of **8**






Not started

I'm done!

Main project settings

Enable

 Use surveys in this project? 

 [VIDEO: How to create and manage a survey](#)

Disable

 Use longitudinal data collection with defined events? 

Modify project title, purpose, etc.




Not started

I'm done!

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). 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



In progress

I'm done!

Define your events and designate instruments for them

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

Go to

Define My Events

or

Designate Instruments for My Events

Events

Project Setup

Define My Events

Designate Instruments for My Events

This application allows you to define 'events' for your project that allow for the **utilization of data collection forms multiple times for any given project record** (often used when collecting longitudinal data). An 'event' may be a temporal event in the course of your project, such as a participant visit or a task to be performed. After events have been defined, you will need to designate the data collection instruments that you wish to utilize for any or all events, thus allowing you to use a form for multiple events for the same project record. You may **group your events into 'arms'**, in which you may have one or more arms/groups for your project. Each arm can have as many events as you wish. You may use the table below to create new events and/or arms, or modify existing ones. (One arm and one event will be initially defined as the default for all projects.)

STEP #1:

To add new events below, provide an **Event Name** for that event, and then click the *Add new event*. Once events have been added, you can easily change their order by dragging and dropping the event using the up-down arrow icon on the far left for a given row in the table.

STEP #2:

Once you have defined your events on this page, you may navigate to the [Designate Instruments for My Events](#) page, where you may select which data collection instruments that you wish to utilize for each event you defined.

NOTE: To get you started, we have already added one event for you below. You may edit this event and also add as many events as you need.

Upload or download arms/events

Arm 1: Arm 1

+Add New Arm

Arm name: **Arm 1**

[Rename Arm 1](#)

| | Event # | Event Name | Custom Event Label (optional) | Unique event name (auto-generated) |
|---------------|----------------------|---|---|------------------------------------|
| | 1 | Event 1 | | event_1_arm_1 |
| Add new event | <input type="text"/> | <input type="text"/> Descriptive name for this event | <input type="text"/> Custom Event Label (optional) Example: [visit_date], [weight] kg | |

Scheduling



Not started

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). Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

I'm done!

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](#)



In progress

Define your events and designate instruments for them

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

Go to [Define My Events](#) or [Designate Instruments for My Events](#)

I'm done!



Optional

Enable optional modules and customizations

Repeatable instruments [?](#)

Auto-numbering for records [?](#)

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

Randomization module [?](#)

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

I'm done!

[Additional customizations](#)



Optional

Set up project bookmarks (optional)

You may create custom bookmarks to webpages that exist inside or outside of REDCap. These bookmarks will be seen as links on the left-hand project menu and can be accessed at any time by users who are given privileges to do so. Every project bookmark has custom settings that allow one to control its appearance and behavior.

I'm done!

Go to [Add or edit bookmarks](#)

Scheduling (2)

REDCap™

Logged in as **embo.user1** | Log out

My Projects

Project Home or Project Setup

REDCap Messenger

Project status: **Development**

Data Collection Edit instruments

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

Show data collection instruments

Applications

- Calendar
- Data Exports, Reports, and Stats
- Data Import Tool
- Data Comparison Tool
- Logging
- Field Comment Log
- File Repository
- User Rights and DAGs
- Record Locking Customization
- E-signature and Locking Mgmt
- Data Quality

Help & Information

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

EMBO Course Project - User1

Project Home Project Setup Other Functionality Project Revision History

Project status: **Development** Completed steps **0 of 8**

Main project settings

Not started

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

Disable Use longitudinal data collection with defined events? [?](#)

I'm done! Modify project title, purpose, etc.

Design your data collection instruments

Not started

I'm done! 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). 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](#)

Define your events and designate instruments for them

In progress

I'm done! Create events for re-using data collection instruments and/or set up scheduling.

Go to [Define My Events](#) or [Designate Instruments for My Events](#)

Enable optional modules and customizations

Optional

Enable Repeatable instruments [?](#)

Disable Auto-numbering for records [?](#)

Scheduling (3)




Scheduling

 [VIDEO: How to use the scheduling module \(7 min\)](#)

Create Schedule

View or Edit Schedule

View/Edit Existing Schedule for "Patient_1"

Below are the calendar events for **Subject ID "Patient_1"**. Dates that fall on weekends will be listed in **red**. You may edit any calendar event by clicking the  Edit icon, remove an event by clicking the  Delete icon, or view the full details of the event by clicking the  View icon. You may also add a new unscheduled event at the bottom of the table by selecting a date and clicking the *Add* button.

| | Time | Date / Day of Week <small>Y.M.D</small> | Event Name | Status | Notes |
|---|-------|---|------------|------------|-------|
|    | 08:00 | 2018.09.12 Wednesday <small>Range: 2018.09.03 - 2018.09.23</small> | Visit 1 | ☆ Due Date | |
|    | 09:00 | 2019.03.15 Friday <small>Range: 2019.03.05 - 2019.03.25</small> | Visit 2 | ☆ Due Date | |
|    | 08:30 | 2019.09.13 Friday <small>Range: 2019.09.03 - 2019.09.23</small> | Visit 3 | ☆ Due Date | |

 Add new Ad Hoc calendar event on

 [Print Schedule](#)

Calendar

Logged in as **roomp_luxparktest**
Log out

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

Data Collection [Edit instruments](#)

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
- E-signature and Locking Mgmt
- Data Quality
- API and API Playground
- REDCap Mobile App
- External Modules

Reports [Edit reports](#)

1) Anthropometry Overview

Help & Information

Calendar

 [VIDEO: How to use the calendar \(7 min\)](#)

The Calendar application can be used as a project calendar within this project to help organize your schedule and keep track of any upcoming events. It will allow you to add or modify calendar events and then view them either in a daily, weekly, or monthly format below. To add a new note or calendar event to any day, click **+New** at the top of that day's box to begin entering the information. Since you have already defined multiple events for this project, you may additionally [generate a schedule](#) using your pre-defined Events, which will then be added to the calendar.

Day Week Month Agenda

September 2018 [Print Calendar](#)

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|----------|----------|----------|--------------------------------------|--------------------------------------|----------|----------|
| | | | | | | + New 1 |
| + New 2 | + New 3 | + New 4 | + New 5 | + New 6 | + New 7 | + New 8 |
| + New 9 | + New 10 | + New 11 | + New 12 ★ 08:00 Patient_1 (Vi... | + New 13 ★ 10:00 Patient_2 (Vi... | + New 14 | + New 15 |
| + New 16 | + New 17 | + New 18 | + New 19 | + New 20 | + New 21 | + New 22 |
| + New 23 | + New 24 | + New 25 | + New 26 | + New 27 | + New 28 | + New 29 |

Reports

REDCap™

Logged in as **embo.user1** | Log out

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

Data Collection [Edit instruments](#)

- Scheduling**
- Generate schedules for the calendar using your defined events
- Record Status Dashboard**
- View data collection status of all records
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- Create new records or edit/view existing ones

Show data collection instruments

Applications

- Calendar
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- Data Comparison Tool
- Logging
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- Data Quality

Help & Information

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

EMBO Course Project - User1

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

Project status: Development

Completed steps **0** of **8**



Not started

Main project settings

Use surveys in this project? [?](#)

[VIDEO: How to create and manage a survey](#)

Use longitudinal data collection with defined events? [?](#)

I'm done!



Not started

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). Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

I'm done!

Go to or Explore the

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

Learn how to use



In progress

Define your events and designate instruments for them

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

Go to or

I'm done!



Optional

Enable optional modules and customizations

Repeatable instruments [?](#)

Auto-numbering for records [?](#)


Reports (2)

Data Exports, Reports, and Stats







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

 Create New Report

 My Reports & Exports

 Other Export Options

This module allows you to easily view reports of your data, inspect plots and descriptive statistics of your data, as well as export your data to Microsoft Excel, SAS, Stata, R, or SPSS for analysis (if you have such privileges). If you wish to export your *entire* data set or view it as a report, then Report A is the best and quickest way. However, if you want to view or export data from only specific instruments (or events) on the fly, then Report B is the best choice. You may also create your own custom reports below (if you have such privileges) in which you can filter the report to specific fields, records, or events using a vast array of filtering tools to make sure you get the exact data you want. Once you have created a report, you may view it as a webpage, export it out of REDCap in a specified format (Excel, SAS, Stata, SPSS, R), or view the plots and descriptive statistics for that report.

| My Reports & Exports | | | | |
|---|---|--|--------------------|---|
| | Report name | View/Export Options | Management Options | Report ID  (auto-generated) |
| A | All data (all records and fields) |  View Report  Export Data  Stats & Charts | | |
| B | Selected instruments (all records) |  Make custom selections | | |
|  | | | | |

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 1 | <input type="text" value="record_id 'Record ID'"/> | <input type="button" value="ABX"/> | Instrument: My First Instrument | <input type="button" value="X"/> |
| Field 2 | <input type="text" value="Type variable name or field label"/> | <input type="button" value="ABX"/> | | |

STEP 3

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

Filters (optional)

Operator / Value

| | | | | | |
|---|---------------|--|------------------------------------|--------------------------------|-------------------------------|
| 1 | Filter | <input type="text" value="Type variable name or field label"/> | <input type="button" value="ABX"/> | <input type="text" value="="/> | <input type="text" value=""/> |
|---|---------------|--|------------------------------------|--------------------------------|-------------------------------|

Switch format: [Use advanced logic](#)

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 | <input type="text" value="record_id 'Record ID'"/> | <input type="button" value="ABX"/> | <input type="text" value="Ascending order"/> |
| Then by | <input type="text" value="Type variable name or field label"/> | <input type="button" value="ABX"/> | <input type="text" value="Ascending order"/> |
| Then by | <input type="text" value="Type variable name or field label"/> | <input type="button" value="ABX"/> | <input type="text" value="Ascending order"/> |

Data Dictionary

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

Project status: Development

Completed steps **0** of **7**



Not started

Main project settings

Enable

Use surveys in this project? [?](#)

[VIDEO: How to create and manage a survey](#)

Enable

Use longitudinal data collection with defined events? [?](#)

I'm done!

Modify project title, purpose, etc.



Not started

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). Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

I'm done!

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](#)



Optional

Enable optional modules and customizations

Enable

Repeatable instruments [?](#)

Disable

Auto-numbering for records [?](#)

I'm done!

Enable

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

Enable

Randomization module [?](#)

Enable

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

Additional customizations

Settings displayed to Administrators only:

Enable

Twilio SMS and Voice Call services for surveys [?](#)

Data Dictionary (2)

 [Project Home](#)

 [Project Setup](#)

 [Online Designer](#)

 [Data Dictionary](#)

 [VIDEO: How to use this page](#)

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 module may be used for making changes to the project, such as adding new fields or modifying existing fields, by using an offline method called the Data Dictionary. The Data Dictionary is a specifically formatted CSV (comma delimited) file within which you may construct your project fields and afterward upload the file here to commit the changes to your project.

Click the 'Browse' or 'Choose File' button below to select the file on your computer, and upload it by clicking the 'Upload File' button. Once your file has been uploaded, changes will NOT immediately be made but will be displayed and checked for errors to ensure that all the formatting in your Data Dictionary is correct before official changes are made to the project. **Snapshot note:** A snapshot of your project's current Data Dictionary will be created automatically during the Data Dictionary upload process before committing the new Data Dictionary. The snapshot can later be accessed and downloaded from the Project Revision History page.


Need some help?

If you wish to view an example of how your Data Dictionary may be formatted, you may download the [Data Dictionary demonstration file](#), or you may view the [Data Dictionary Tutorial Video \(10 min\)](#). For help setting up your Data Dictionary, you may also see the instructions listed on the [Help & FAQ](#).

Steps for making project changes:

- 1.) [Download the current Data Dictionary](#) 
- 2.) Edit the Data Dictionary (see the [Help & FAQ](#) for help)
- 3.) Upload the Data Dictionary using the form below
- 4.) The changes will be made to the project after the Data Dictionary has been checked for errors

Upload your Data Dictionary file (CSV file format only)

Format for min/max validation values for date and datetime fields: 

Data Dictionary (3)

| Variable / Field Name | Form Name | Section Header | Field Type | Field Label | Choices, Calculations, OR Slider Labels | Field Note |
|-----------------------|--------------|----------------|------------|---------------|---|------------|
| dm_subjectid | demographics | | text | Subject ID | | |
| dm_dob | demographics | | text | Date of Birth | | |
| dm_sex | demographics | | radio | Sex | 1, M 2, F | |

| Text Validation Type OR Show Slider Number | Text Validation Min | Text Validation Max |
|--|---------------------|---------------------|
| | | |
| date_ymd | 01-01-00 | |
| | | |

| Identifier? | Branching Logic (Show field only if...) | Required Field? | Custom Alignment | Question Number (surveys only) | Matrix Group Name | Matrix Ranking? | Field Annotation |
|-------------|---|-----------------|------------------|--------------------------------|-------------------|-----------------|------------------|
| | | | | | | | |
| | | y | | | | | |
| | | y | RH | | | | |

Production Mode

REDCap™

Logged in as **embo.user1** | Log out

My Projects

Project Home or Project Setup

REDCap Messenger

Project status: **Development**

Data Collection [Edit instruments](#)

Scheduling
- Generate schedules for the calendar using your defined events

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Help & Information

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

EMBO Course Project - User1

Project Home | Project Setup | Other Functionality | Project Revision History

Project status: **Development** Completed steps **0** of **8**

Main project settings

Not started

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

Disable Use longitudinal data collection with defined events? [?](#)

I'm done!

Modify project title, purpose, etc.

Design your data collection instruments

Not started

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). Quick links: [Download PDF of all instruments](#) OR [Download the current Data Dictionary](#)

I'm done!

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](#)

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 [Define My Events](#) or [Designate Instruments for My Events](#)

I'm done!

Enable optional modules and customizations

Optional








Enable Repeatable instruments [?](#)

Disable Auto-numbering for records [?](#)

Data Export

- Data can be exported to statistical packages (SPSS, SAS, R or Excel)
- Data access can be granted or restricted when exporting for analysis
- Exports can include identified or de-identified data only on a per user basis

Choose export format

| | | |
|----------------------------------|---|----------------------------------|
| <input checked="" type="radio"/> |  | CSV / Microsoft Excel (raw data) |
| <input type="radio"/> |  | CSV / Microsoft Excel (labels) |
| <input type="radio"/> |  | SPSS Statistical Software |
| <input type="radio"/> |  | SAS Statistical Software |
| <input type="radio"/> |  | R Statistical Software |
| <input type="radio"/> |  | Stata Statistical Software |
| <input type="radio"/> |  | CDISC ODM (XML) |

Data Import Tool

- Tool used for importing data into project from a CSV (comma delimited) file
- Import template available for each project
- 'dropdown' or 'radio' fields use the numerical value (rather than the text value) or it cannot be processed
- Any empty rows or columns can be deleted before importing the file
 - reduces the upload processing time, especially for large projects

| | A | B | C | D | E | F | G | H | |
|---|-----------------|-------------------|--------------------------|-------------|-------------------|------------------|--------------|-----------------------------|-------|
| 1 | cdisc_dm_usubjd | redcap_event_name | redcap_data_access_group | dm_mpowerid | cdisc_dm_subjid_2 | cdisc_dm_brthdct | cdisc_dm_sex | cdisc_sc_sctestcd_maritstat | cdisc |
| 2 | | | | | | | | | |
| 3 | | | | | | | | | |
| 4 | | | | | | | | | |

Data Import Tool (2)

- CDISC ODM (Operational Data Model) is a specific XML data format
- ODM is a vendor neutral, platform independent format for interchange and archival of data
- Data can be imported/exported using CDISC ODM format
- Data from ODM-compatible system outside of REDCap can be used
 - The XML must be ODM version 1.3.X.

```
<?xml version="1.0" encoding="UTF-8" ?>
<ODM xmlns="http://www.cdisc.org/ns/odm/v1.3" xmlns:ds="http://www.w3.org/2000/09/xmldsig#" xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
<ClinicalData StudyOID="Project.LuxPARK" MetaDataVersionOID="Metadata.LuxPARK_2017-07-05_1926">
  <SubjectData SubjectKey="ND0001">
    <StudyEventData StudyEventOID="Event.visit_1_arm_1" StudyEventRepeatKey="1" redcap:UniqueEventName="visit_1_arm_1">
      <FormData FormOID="Form.demographics" FormRepeatKey="1">
        <ItemGroupData ItemGroupOID="demographics.cdisc_dm_usubjd" ItemGroupRepeatKey="1">
          <ItemData ItemOID="cdisc_dm_usubjd" Value="ND0001"/>
        </ItemGroupData>
      </FormData>
      <FormData FormOID="Form.psp_mdtpd_munich_dysphagia_test_parkinsons_disease" FormRepeatKey="1">
        <ItemGroupData ItemGroupOID="psp_mdtpd_munich_dysphagia_test_parkinsons_disease.psp_mdtpd_munich_dysphagia_test_
          <ItemData ItemOID="psp_mdtpd_munich_dysphagia_test_parkinsons_disease_complete" Value="2"/>
        </ItemGroupData>
      </FormData>
      <FormData FormOID="Form.visit_dates" FormRepeatKey="1">
        <ItemGroupData ItemGroupOID="visit_dates.sv_age" ItemGroupRepeatKey="1">
          <ItemData ItemOID="sv_age" Value="83.36099760205"/>
        </ItemGroupData>
      </FormData>
    </StudyEventData>
  </SubjectData>
</ClinicalData>
```

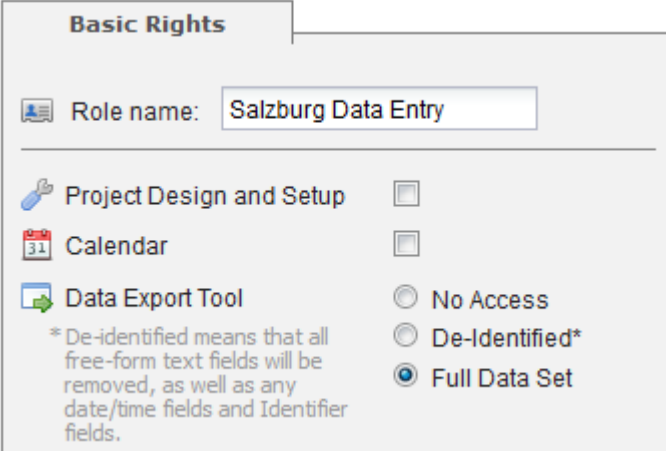
REDCap API

- 'API' = 'Application Programming Interface'
- The REDCap API is an interface that allows external applications to connect to REDCap remotely
 - used for programmatically retrieving or modifying data or settings within REDCap
 - e.g. performing automated data imports/exports for a specified REDCap project
 - Formats: CSV, JSON, XML




| Supported Methods | |
|-------------------|---|
| Arr | Metadata |
| Exp | Export Metadata (Data Dictionary) |
| Imj | Import Metadata (Data Dictionary) |
| Del | Projects |
| Even | Create Project |
| Exp | Import Project Info |
| Imj | Export Project Info |
| Del | Export Project XML |
| Fiel | Generate Next Record Name |
| Exp | Records |
| File | Export Records |
| Exp | Import Records |
| Imj | Delete Records |
| Del | Reports |
| Inst | Export Reports |
| Exp | REDCap |
| For | Export REDCap Version |
| Exp | Surveys |
| Exp | Export a Survey Link |
| Imj | Export Survey Participants |
| Met | Export a Survey Queue Link |
| Exp | Export a Survey Return Code |
| Imj | Users & User Privileges |
| | Export Users |
| | Import Users |

Security, Privacy Features

- Identifying data can be flagged in the interface
- Data protection can be applied to those that have restricted access to identifiers
- All transactions are fully encrypted
- Logins use secure authentication
- 2 factor authentication possible



The screenshot shows a 'Basic Rights' configuration window. At the top, the title is 'Basic Rights'. Below the title, there is a field for 'Role name:' with the value 'Salzburg Data Entry'. Below this, there are three rows of permissions, each with an icon, a label, and a checkbox:

| Icon | Permission Label | Checkbox |
|---|--------------------------|---|
|  | Project Design and Setup | <input type="checkbox"/> |
|  | Calendar | <input type="checkbox"/> |
|  | Data Export Tool | <input checked="" type="radio"/> No Access <input type="radio"/> De-Identified* <input type="radio"/> Full Data Set |

* De-identified means that all free-form text fields will be removed, as well as any date/time fields and Identifier fields.