REDCAP
INTRODUCTION CLASS (101)

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REDCap
Research Electronic Data Capture

ITHS Partnership

- Speeding science to clinical practice for the benefit of patients and communities.

- Promotes translation of scientific discovery by:

  ❑ Fostering innovative research

  ❑ Cultivating multi-disciplinary partnerships

  ❑ Training the next generation of researchers

- More information: www.iths.org

Laboratory → **Clinic** → **Community**

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Agenda & Project Workflow

Overview	Getting Access	Design/Test	Production	Data Collection	User Rights
About REDCap	*Project creation & navigation*	*Designing instruments and variables*	*Moving the project to production*	*Creating records*	*Adding users to your project*

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What is REDCap?

- Electronic Data Capture (EDC)

- Web-based

- Built for research

- HIPAA compliant

- User-friendly

- ITHS REDCap
  - Free to use
  - Highly secure
  - Backed up daily

6000+ installations worldwide
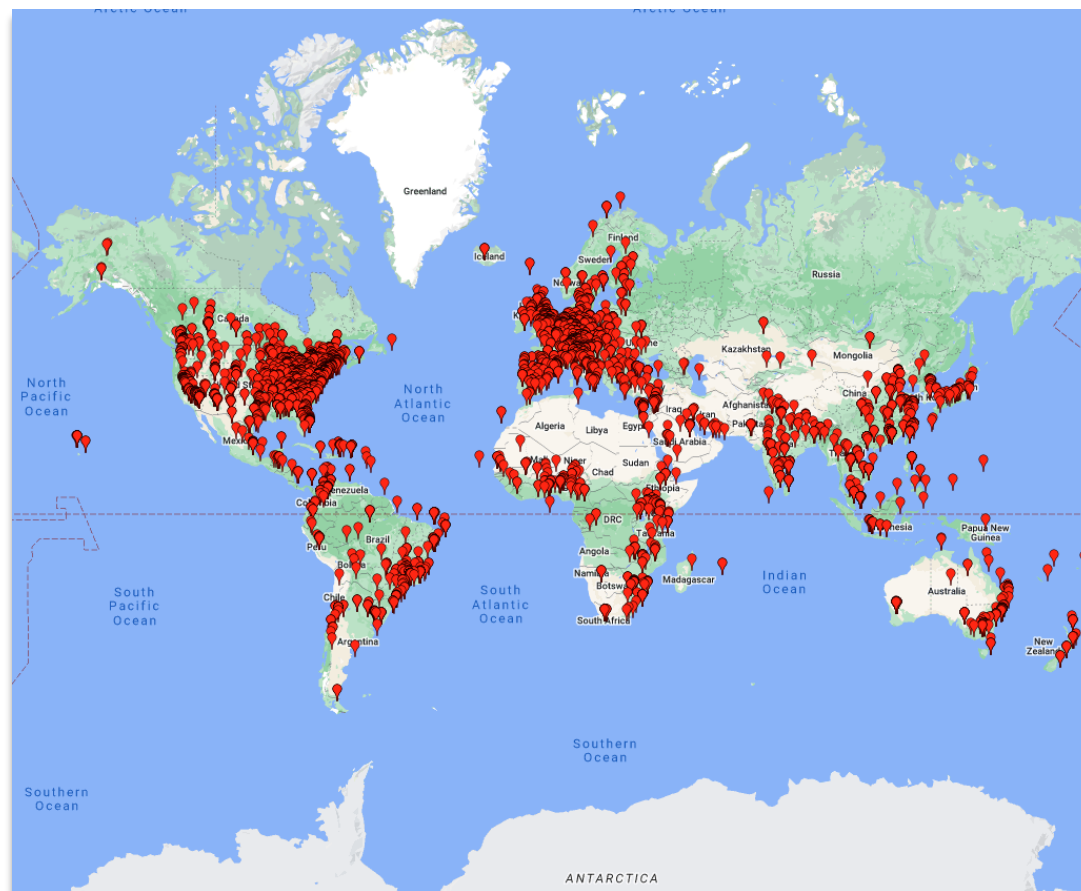
Security Concerns

Web service setup

- *Managed by the UW*
- *Encrypted on secure servers (256 bit)*
- *UW HIPAA compliant*

Three-tiered access

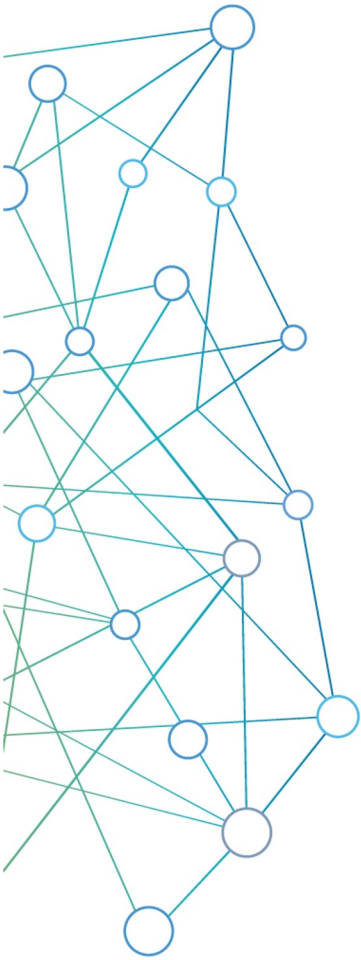- *System login*
- *Project access*
- *User restrictions*

Audit trails

- *Logging feature*

De-identified data export

- *Identify variables as Personal Health Information (PHI)*
- *Export module with de-identifying option*

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Accessing REDCap

University of Washington NetID's

Use your UW NetID to login at:
https://redcap.iths.org
to create an account

Other University ID's

Select universities can log in with their IDs on REDCap

Partner Institutions

Fred Hutch, SCCA, Seattle Children's, PATH, and other WWAMI regional institutions can request IDs

Others

Use ITHS REDCap for free if affiliated with one of our partner institutions and have a sponsor fill out the **ITHS new outside user request form**

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Navigating REDCap

Home

My Projects

Request New Projects

Help & FAQ

Training Resources

My Profile

Project Requests / Approvals
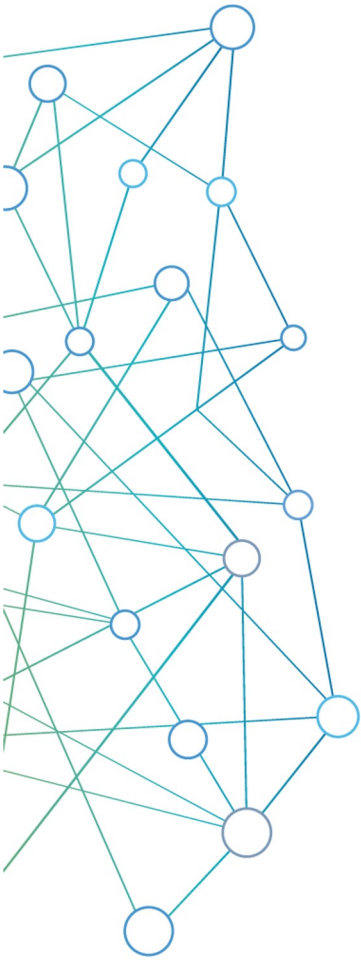
Project requests

Done within one business day

Needed information

- *Project title*
- *Purpose*
  - *If Research provide:*
    - *Principal investigator*
    - *IRB*
    - *Type of research*

Blank slate, XML files & Templates

Project creation option:	● Empty project (blank slate)
	○ Upload a REDCap project XML file (CDISC ODM format) ?
	○ Use a template (choose one below)

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Project Navigation

Menu Navigation

Data collection

Applications

Help & Information

Project Home

Project Setup

Other Functionality

Designing Forms & Surveys

Online designer

- *Wizard type instrument design*
- *Very forgiving*
- *Great way to learn – experiment!*

REDCap shared library

- *Quickest way to load an instrument*
- *Curated by Vanderbilt University*

Zip files

- *Import individual instruments from other projects*
- *Great for sharing commonly used instruments*

Data dictionary tab

- *Advanced feature that defines an entire project*
- *Excel file that you customize outside of REDCap*

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Options for Creating Instruments

- Create a new blank instrument and start from scratch.
- Select a pre-built instrument from the shared REDCap Instrument Library.
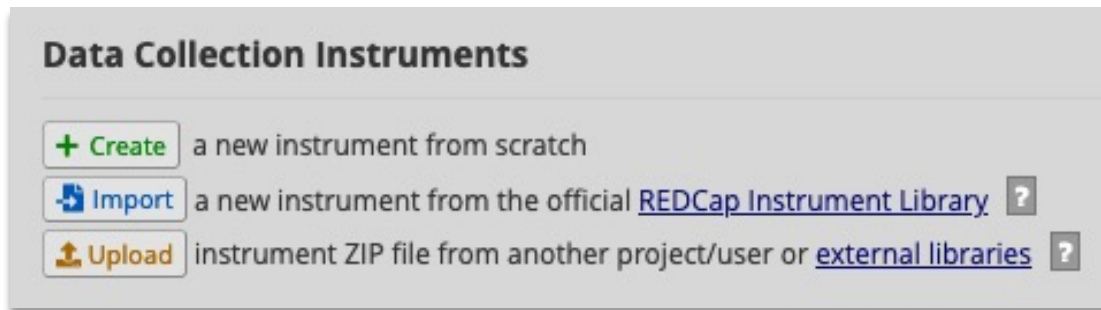- Upload a Zip file downloaded from another project or external library.

Data Collection Instruments

+ Create a new instrument from scratch

Import a new instrument from the official REDCap Instrument Library ?

Upload instrument ZIP file from another project/user or external libraries ?

- Or use the Data Dictionary to add or modify instruments.

Data Dictionary

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Online Designer
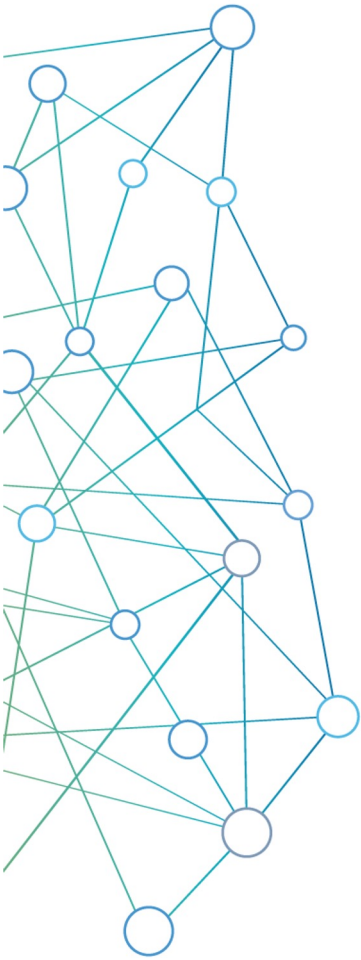
Instruments

- *Create, Import, Upload*
- *Rename, Copy, Delete, Download instrument ZIP*
- *No limit on the number of forms in a project*

Variables

- *Each instrument must have at least one variable*
- *Variables can be edited, moved, or deleted within a project*

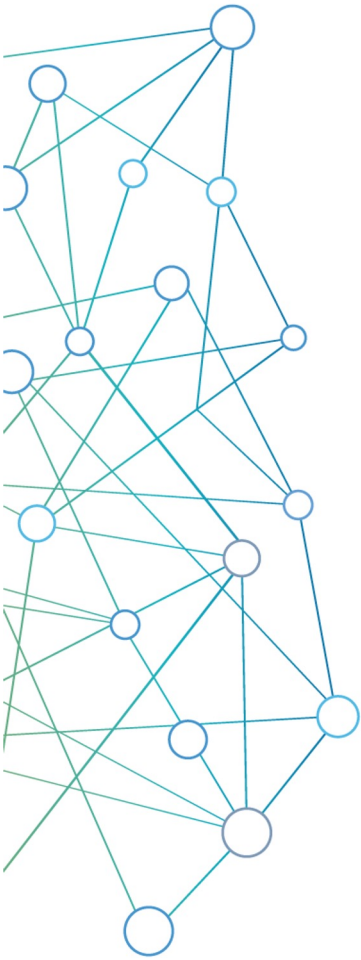## Variable limits

- *No real "technical" limit*
- *Best practices: No more than 1000 variables per form*

Surveys versus Forms

- *Each instrument starts as a Form, can be turned into a survey*
- *Any survey can still be filled out as a form*

Variable Creation

Necessary field attributes

- *Variable name*
- *Field type*
- *Field label*

Optional attributes

Required, Identifier, Custom alignment, Field note, Field annotation, Action tags
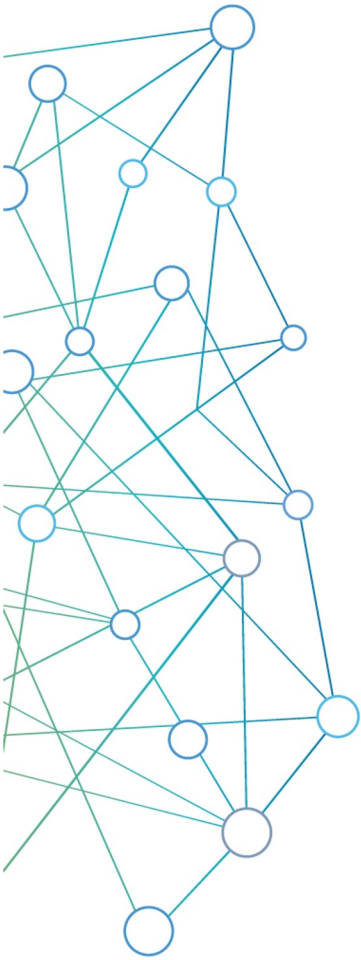
Conditional attributes

Validation, Minimum, Maximum, Ontology lookup

Matrix fields

Collection of variables for display

Creating Fields for your Variables

Unstructured field types

- *Free text*
- *Comment boxes*
- *Dates, numbers, etcetera*

Structured field types

- *Limited set of answers*
- *Pre-defined*

Special & calculation field types

- *Uploading files*
- *Doing calculations with entered data*

Display field types

- *Plain text, HTML, video, audio, pictures, files*

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Creating Fields and Field Types

- Click on Add Field to add a new field.
- Select the type of field from Field Type drop-down.
- Fill out required field attributes.
- Add optional field attributes such as validation.

Add Field

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:

---- 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)
Dynamic Query (SQL)

Question Nu
Displayed only o

Field Label
Result

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

How to use [⚡] Smart Variables / Piping ✛ Field Embedding

Validation? (optional) ---- None ----
– or –
-- select ontology service --

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

Action Tag

Learn about @ Action Tags or using Field Annotation

Save Cancel

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Unstructured Field Types

Unstructured
Structured
Special
Calculations
Display
Matrix

Text box

- Free text

- Validation

  - Dates, numbers, emails, phone numbers etcetera

  - Minimum & maximum

- Bio-medical ontologies (Look-up tables)

  - Over 400 different ontologies available

  - Examples: ICD-9, ICD-10, Medications

Notes box

- Great for bigger pieces of text

  - Clinical notes

  - Comments on surveys

  - Descriptions

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Structured Field Types

Unstructured

Structured

Special

Calculations

Display

Matrix
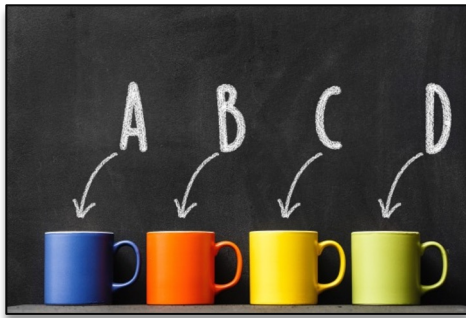
Single answer

- Drop down

- Radio button

- Slider

  o   Default scale 0 to 100 but adjustable

- Pre-set choices:

  o   Yes/No

  o   True/False

Multiple answer

- Checkboxes

  o   Stored differently than single answer

  o   Has different branching logic syntax

Special Field Types

Unstructured

Structured

Special

Calculations

Display

Matrix

Signature

- Allows people to "sign" a document

- Captures a small png file

- Preferable to the "check if agree" method

- Works on both computers and touch enabled devices

File upload

- Any file type is allowed

- REDCap just acts as storage for the file

- 100 MB limit per upload

- Useful for uploading:

  o Photos

  o Consent documents

  o Other scanned documentation

Calculated Field Type

Unstructured

Structured

Special

Calculations

Display

Matrix
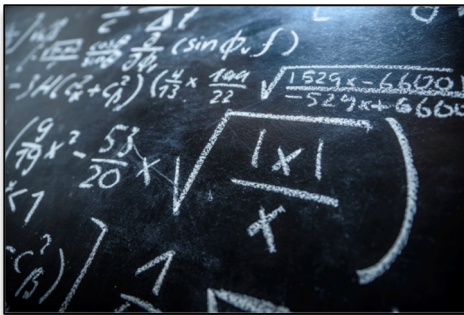
Calculations

- Must have a number as the result

- Limited to variables in one record

- Similar syntax as branching logic

- Special functions are added

  - Datediff()

  - Sum()

  - Mean()

  - Full list (see Special Functions)

- Used for:

  - Scoring tools

  - Simple calculations (like BMI)

- Test out calculations in a test record before finalizing

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Display Field Types

Unstructured

Structured

Special

Calculations

Display

Matrix

Descriptive text field

- Text – Has rich text editor, HTML can be used

- Add Video/Audio files

  - Hosted outside of REDCap (YouTube, Vimeo)

  - Inline or Inside popup

- Picture display

- Files (100 MB size limit)

Begin new section

- Used to separate blocks of variables

- Can be used in surveys to create separate pages

- Can add text to header

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Matrix Fields

Unstructured

Structured

Special

Calculations

Display
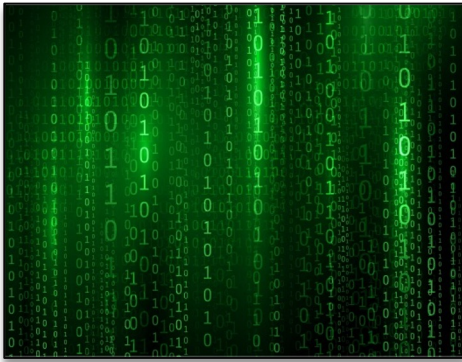
Matrix

Matrix

- Groups a set of related variables together
    - Radio buttons
        - Ranking – one choice per column
    - Checkboxes
- Columns are the options
    - All the options must be the same
- Rows are the questions/variables
- Branching logic is allowed on individual questions

Which is best?			
(One selection allowed per column)	best	second best	no way
Cats	●	○	○
			reset
Dogs	○	●	○
			reset
No pets	○	○	●
			reset

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Branching Logic

Variable: test_sites

The art of hiding fields

- Setup true/false logic statements

- Uses project variables

- True shows the field, false hides it

Project limited

Use values in other forms or events, but not other projects

Drag and drop method

- Select variables and logic from a dropdown menu

- No knowledge of syntax or programming needed

Syntax method

Allows for much more complex logic, but is difficult to set up correctly
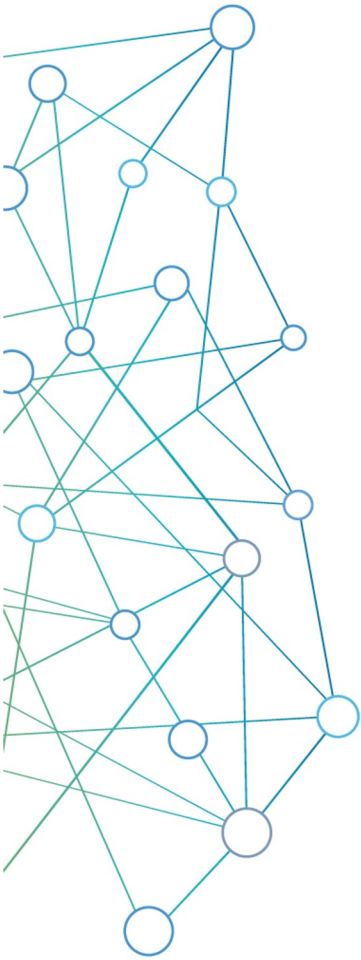
Moving to Production

Move project to production

Project Status Management

Development (current) → Production → Analysis/Cleanup

Mark project as Completed If you are finished with a project and wish to make it completely inaccessible, you may mark the project as 'Completed'. Doing so will take it offline and remove it from everyone's project list, after which it can only be seen again by clicking the *Show Completed Projects* link at the bottom of the *My Projects* page. Read more

Approval Process

- Most of the time, you will not have contact with the REDCap administrator.

- However, there are some specific situations where there are data integrity measures that require administrator involvement.

Project creation /Copy project

- *Approved quickly and almost always approved to keep REDCap running smoothly.*
- *Exceptions might be out of WWAMI requests, copying large amounts of data.*

Change approval

- *Approved within one business day.*
- *Goals is to prevent inadvertent data loss.*
- *You have final say!*

Basic Data Collection

+ Add new record

Add / Edit Records

Options located in the data collection menu.
Entering a new record ID will create a new record.
Entering an existing record ID will allow you to edit.

Data Search

Allows the user to search based on one of the variables,
provided they are unique enough to identify records.

Unique record ID's

Each REDCap record will have a unique ID. The ID is always
stored in the very first variable of your very first instrument.

Deleting test records

Done by moving to production, erasing all data, or
deleting individual records

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Record Status Dashboard

- View all your records in the Record Status Dashboard

- Legend shows current record status

User Rights

Adding users to your project

Anyone that has a user account on the ITHS REDCap server can be added to your project as a user with a custom set of rights.

Form rights

Hide forms completely, View-only mode or full access

Application rights

Give users only access to applications they need

User roles

Useful for when you need to add a lot of users with the same rights quickly

Basic Data Export

- You can export your entire data set in a few seconds

- Multiple formats available

- You can also create and save custom reports that create subsets of your data.

- These subsets are exportable in the same way as the entire data set.

Choose export format

- ○ CSV / Microsoft Excel (raw data)
- ○ CSV / Microsoft Excel (labels)
- ○ SPSS Statistical Software
- ○ SAS Statistical Software
- ○ R Statistical Software
- ○ Stata Statistical Software
- ○ CDISC ODM (XML)

Getting Help

- REDCap has built in help on the Project Setup page and when building forms through Online Designer

- Click on the Contact REDCap administrator link at the top or bottom of the left menu to send a question

- Find more classes on the ITHS web page

- Information on our weekly office hours is located at the top of the My Projects page.

🔧 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

Not started

I'm done!

Go to ✏ Online Designer or 📊 Data Dictionary   Explore the 🧰 REDCap Instrument 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   ✥ Field Embedding   √x Special Functions

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Thank You!

Questions?

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