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Integrating REDCap and Statistical Analysis for Biomedical Research

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## REDCap Data Import Tool

Michael L. Chang

*Drexel University*, [mcclash5656@gmail.com](mailto:mcclash5656@gmail.com)

Andy Huang

*University of Delaware*, [huangand@outlook.com](mailto:huangand@outlook.com)

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## REDCap Data Import Tool

### Description

- Manually transferring data between various spreadsheets and databases can be labor-intensive and error-prone.
- The REDCap Data Import tool is useful for importing data from a CSV file into an existing REDCap database and for transferring data between two identical forms from two different REDCap databases.
- The REDCap Data Import Tool provides feedback and a clear preview of the data to either be added or overwritten.

# REDCap Data Import Tool

Michael L. Chang<sup>1</sup> and Andy Huang<sup>2</sup>



## Summary

- Manually transferring data between various spreadsheets and databases can be labor-intensive and error-prone.
- The REDCap Data Import tool is useful for importing data from a CSV file into an existing REDCap database and for transferring data between two identical forms from two different REDCap databases.
- The REDCap Data Import Tool provides feedback and a clear preview of the data to either be added or overwritten.

## Introduction

A CSV (comma-separated values) file can contain a significant amount of research data, and it proves very effective for REDCap data transfer. Transferring data between identical forms from two different REDCap databases takes time, especially when data from two REDCap databases cannot simply be merged into one database. For example, if data from database A needs to be transferred to database B, one method would be to manually copy and paste all of the fields from one database to the other. Not only does this method take a lot of time, but it also increases the likelihood of errors during data entry. However, with the REDCap Data Import Tool, you can easily import data into the existing REDCap form from a CSV file. All data entries can be consolidated into the spreadsheet and uploaded such as to enter new data or overwrite existing data.

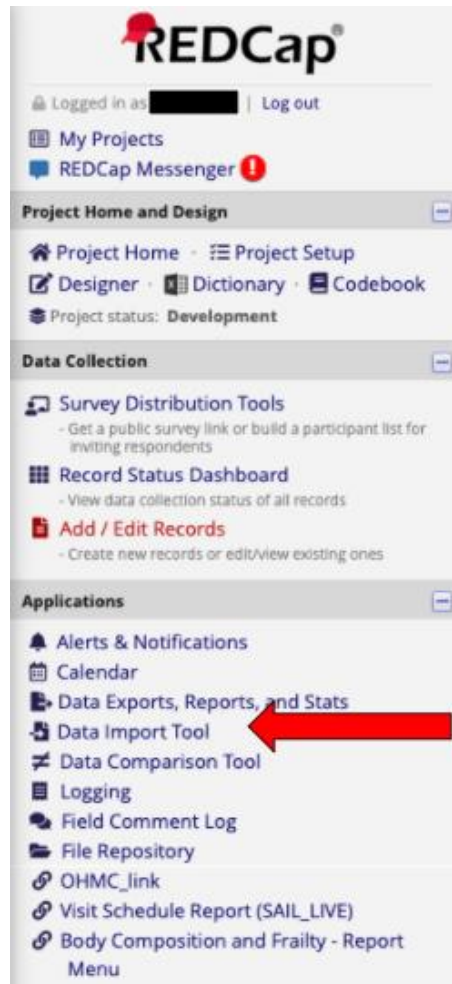
To import data from a CSV file:

1. Click on the “Data Import Tool” in the “Applications” section of the left-hand sidebar.

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<sup>1</sup> Drexel University

<sup>2</sup> College of Health Sciences, University of Delaware

**Figure 1. Locating the Data Import Tool.**

2. For the Data Import tool to work on CSV files, variable names from the instruments must be present on the CSV. Fortunately, the Data Import Tool provides templates with each REDCap form's variables already entered into the spreadsheet. You can choose to have your variables oriented either in the top row or first column. If you want the variables to show in the top row, then download the template "with records in rows," as shown in the figure below. You would select this option if you want to view a particular record with variables reading from left to right. If you want the variables to display in the first column, then download the template "with records in columns." You would select this option if you prefer the record and its variables be read from top to bottom.

**Figure 2. Downloading the Appropriate Orientation Data Import Template.****Instructions:**

1.) Click the link below to download your data import template as a CSV (comma delimited) file. Save it locally to your computer and then open it to begin filling it with the data you wish to import.

 [Download your Data Import Template](#) (with records in rows)

OR

 [Download your Data Import Template](#) (with records in columns)

2.) In each column of the Data Import Template file that you downloaded, place the data for each record that you wish to import. Once all your data has been added, save the file.

- Be sure not to change the Variables/Field Names in the file or an error may occur.
- All multiple choice fields (e.g., dropdown, radio) must have the raw coded value (rather than the choice label) entered in those cells, or else it cannot be processed. These can be found in the [Codebook](#).
- Any empty rows or columns in the file can be safely deleted before importing the file. Doing this reduces the upload processing time, especially for large projects.

3.) Click the 'Browse' or 'Choose File' button below to select the file on your computer, and upload it by clicking the 'Upload File' button.

4.) Once your file has been uploaded, the data will NOT be immediately imported but will be displayed and checked for errors to ensure that all the data is in correct format before it is finally imported into the project.

3. All multiple choice fields (e.g., dropdown, radio) must have the raw coded value (rather than choice label) entered in those cells, or else it cannot be processed. These values can be found in the Codebook. The link to a specific project's Codebook can be found in Step 2 of the instructions in the REDCap Data Import Tool page.

**Figure 3. Location of the Data Dictionary Codebook.**

CSV import
CDISC ODM (XML) import

**Instructions:**

- Click the link below to download your data import template as a CSV (comma delimited) file. Save it locally to your computer and then open it to begin filling it with the data you wish to import.
  - [Download your Data Import Template](#) (with records in rows)
  - OR
  - [Download your Data Import Template](#) (with records in columns)
- In each column of the Data Import Template file that you downloaded, place the data for each record that you wish to import. Once all your data has been added, save the file.
  - Be sure not to change the Variables/Field Names in the file or an error may occur.
  - All multiple choice fields (e.g., dropdown, radio) must have the raw coded value (rather than the choice label) entered in those cells, or else it cannot be processed. These can be found in the [Codebook](#).
  - Any empty rows or columns in the file can be safely deleted before importing the file. Doing this reduces the upload processing time, especially for large projects.

Data Dictionary CodeBook  
specific for the Project



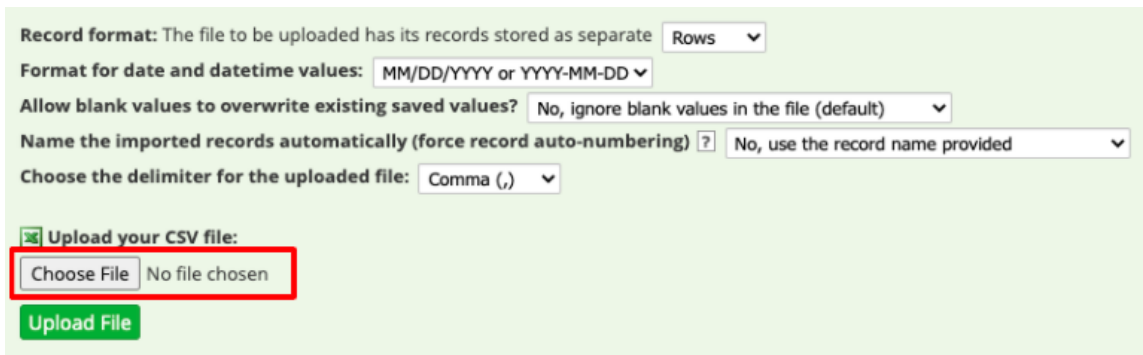
It is very important that the record\_id variable is correctly assigned otherwise existing records will be overwritten. If autonumbering is enabled (discussed later), then the record\_id variable may be unfavorably assigned to a new record name in the database in which the record was imported. For example, if you want to import record\_ids 14, 55, and 89 into a new REDCap form, but the new REDCap form has only records 1 and 2, then those three record\_id's may be mistakenly labelled as 3, 4, and 5 respectively. Another feature to keep in mind is data input for repeat instances. This is particularly important for providing multiple instances of the exact same data. To include these instances, create a new row/column with the same record\_id and label the number instance for that particular data.

**Figure 4. Importance of Record ID Assignment.**

	A	B	C	D	E	F
1	record_id	redcap_event_name	intake_date	first_name	last_name	email_address
2	11	intake_arm_1	4/27/2021	John	Doe	John.doe@gmail.com
3	12	intake_arm_1	5/10/2021	Jane	Doe	JaneDoe@gmail.com
4	13	intake_arm_1	5/10/2021	John	Doe	JohnDoe@gmail.com
5	14	intake_arm_1	3/4/2021	Jane	Doe	jane.doe@gmail.com
6	15	intake_arm_1	3/9/2021	Jen	Doe	jen.doe@gmail.com

4. When all data is entered and you are ready to import, scroll to the bottom of the page in the Data Import Tool to the green box section.
  - a. For **“Record format,”** correctly select either “Rows” or “Columns” based on what you initially selected as your template. If this option is not correct, the import will fail.
  - b. Ensure the date must be in the format MM/DD/YYYY or YYYY-MM-DD.
  - c. For the question “Allow blank values to overwrite existing saved values” the default option is “No” because any record that you do not fill in any data for but is present in the REDCap database will be deleted.
  - d. For **naming the imported records automatically (force record auto-numbering)**, select “No” if you want the record\_ids in the CSV file to appear exactly the same in the REDCap form. If selecting “Yes,” then REDCap Data Import Tool will itself decide how to name the record.
  - e. For **choosing the delimiter for the uploaded file**, the three options are common, tab, and semicolon. Since we are using a CSV file, “Comma (,)” should be selected because the fields are separated by a comma.
  - f. Finally, click “Choose File” and browse for the edited CSV file.

**Figure 6. Upload your CSV File.**



The screenshot shows the 'Upload your CSV file' section of the REDCap Data Import Tool. It includes several configuration options:

- Record format:** The file to be uploaded has its records stored as separate  (dropdown menu).
- Format for date and datetime values:**  (dropdown menu).
- Allow blank values to overwrite existing saved values?**  (dropdown menu).
- Name the imported records automatically (force record auto-numbering) ?**  (dropdown menu).
- Choose the delimiter for the uploaded file:**  (dropdown menu).

Below these options is the 'Upload your CSV file:' section, which contains a 'Choose File' button (highlighted with a red box) and a 'No file chosen' label. At the bottom of this section is a green 'Upload File' button.

If the upload finishes without errors, REDCap will display the data in a matrix shown below.

**Figure 7. Review of Matrix for Data Input of New Records.**

DATA DISPLAY TABLE					
record_id	redcap_event_name	intake_date	first_name	last_name	email_address
<b>11</b> (new record)	intake_arm_1	2021-04-27	John	Doe	John.doe@gmail.com
<b>12</b> (new record)	intake_arm_1	2021-05-10	Jane	Doe	JaneDoe@gmail.com
<b>13</b> (new record)	intake_arm_1	2021-05-10	John	Doe	JohnDoe@gmail.com
<b>14</b> (new record)	intake_arm_1	2021-03-04	Jane	Doe	jane.doe@gmail.com
<b>15</b> (new record)	intake_arm_1	2021-03-09	Jen	Doe	jen.doe@gmail.com

If you would like to overwrite data in existing records, then enter the information in the CSV sheet in those records and upload using the same process. In the data displayed in the table below, it shows the black text entered and the red text beneath it indicating the data to be overwritten. If these are the records you want to add/modify, then click “Import Data.”

**Figure 8. Review of Matrix for Data Input to Overwrite Old Records.**

DATA DISPLAY TABLE					
record_id	redcap_event_name	intake_date	first_name	last_name	email_address
<b>1</b> (existing record)	intake_arm_1	2021-04-27	John	Smith (Doe)	John.smith@gmail.com (John.doe@gmail.com)
<b>2</b> (existing record)	intake_arm_1	2021-05-10	Jane	Smith (Doe)	JaneSmith@gmail.com (JaneDoe@gmail.com)
<b>3</b> (existing record)	intake_arm_1	2021-05-10	John	Smith (Doe)	JohnSmith@gmail.com (JohnDoe@gmail.com)
<b>5</b> (existing record)	intake_arm_1	2021-03-04	Jane	Smith (Doe)	jane.smith@gmail.com (jane.doe@gmail.com)
<b>6</b> (existing record)	intake_arm_1	2021-03-09	Jen	Smith (Doe)	jen.smith@gmail.com (jen.doe@gmail.com)



However, the upload may finish and there may be an error such as the one shown below.

### Figure 9. Possible Error Message.

**ERROR:** The following values for 'redcap\_event\_name' are not valid unique event names for this project, so you will need to fix them and then reimport this data: ""

For incorrectly named variables, refer back to the Codebook to determine the appropriate ways to name them. Once you fix the issue then go back and reupload the spreadsheet.

### *Importing data from multiple CSV sheets*

While the import tool does recognize different sheets, it only imports one: the most recently created sheet. At the moment, there is no clear way to import multiple sheets on a single CSV file.

It could be beneficial to keep a record of past and present import templates and keep track of imports being made. Consult with your study team about situations where multiple import templates may be needed (may or may not exist).

## Conclusion

When a REDCap project is split into two different REDCap databases, it is important to have a way to transfer the existing data without manual entry. Using a CSV file, you can import existing data from a REDCap form to another by overwriting existing data or adding new data.

## Acknowledgements

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## Resources

### *Introduction to Instrument Development*

REDCap Project

[https://redcap.vanderbilt.edu/consortium/videoplayer.php?video=intro\\_instrument\\_dev.mp4&referrer=redcap.med.upenn.edu&title=Introduction%20to%20Instrument%20Development](https://redcap.vanderbilt.edu/consortium/videoplayer.php?video=intro_instrument_dev.mp4&referrer=redcap.med.upenn.edu&title=Introduction%20to%20Instrument%20Development)

This video is a great resource when starting to use the tool and practicing this REDCap function. To practice, create a “Delete me...” database in REDCap--this way, you can practice without

interfering with an ongoing data collection. For example: “Delete me after April 1 2019\_Andy test database.”

### *Data Import from an Excel File*

Wake Forest Baptist Health

<https://ctsi.wakehealth.edu/-/media/WakeForest/CTSI/Files/Services/Data/REDCap/Data/Data-Import-from-an-Excel-file.pdf?la=en>

This website provides the best practices for Importing Data into REDCap with an Excel file.

### *REDCap Advanced Tutorial: Importing Data*

YouTube

[https://www.youtube.com/watch?v=GZVpNMqvWiY&ab\\_channel=UCDREDCap](https://www.youtube.com/watch?v=GZVpNMqvWiY&ab_channel=UCDREDCap)

A YouTube video providing a general overview of the Data Import Tool.

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