

Tufts Clinical and Translational Science Institute

REDCap New Features version 9.5.5

February, 2020

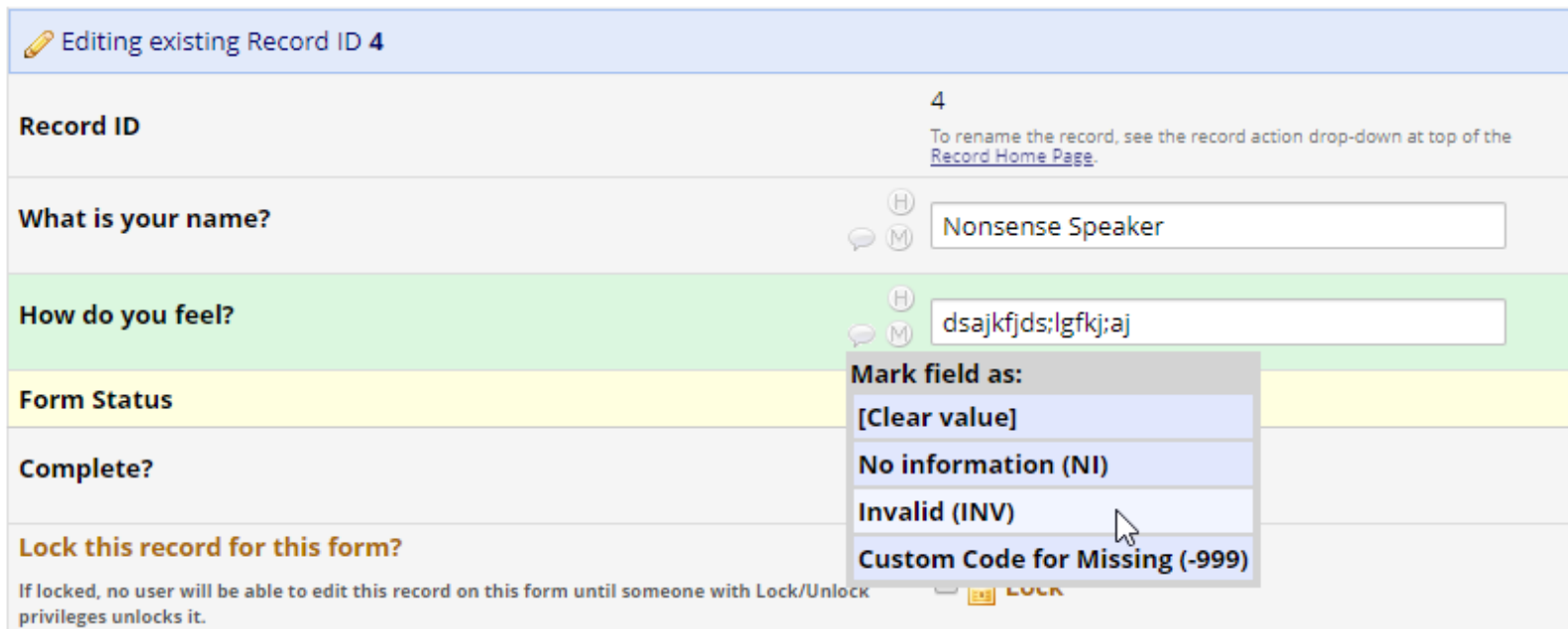
Overview

Tufts CTSI recently upgraded REDCap to version 9.5.5. The new REDCap features are summarized below. If you have questions about these features, please email informatics@tuftsctsi.org:

- [Missing Data Codes](#)
- [Alerts & Notifications](#)
- [Improved Reports](#)
- [New Smart Variables](#)
- [REDCap Mobile App](#)
- [Rich Text Editing](#)
- [reCAPTCHA](#)
- [New Action Tags](#)
- [GDPR Compliance Options](#)
- [...and many more!](#)

Missing Data Codes

REDCap now supports establishing standardized “codes” to indicate that data is missing, rather than just leaving fields blank. These codes can also establish that data is invalid, out-of-range, or otherwise not usable:



The screenshot shows the REDCap interface for editing Record ID 4. The form contains several fields: 'Record ID' (4), 'What is your name?' (Nonsense Speaker), and 'How do you feel?' (dsajkfjds;lgfkj;aj). A dropdown menu is open over the 'How do you feel?' field, showing options to mark the field as: '[Clear value]', 'No information (NI)', 'Invalid (INV)', and 'Custom Code for Missing (-999)'. The 'Custom Code for Missing (-999)' option is highlighted by the mouse cursor. Below the form, there is a 'Lock this record for this form?' section with a 'LOCK' button and a warning message: 'If locked, no user will be able to edit this record on this form until someone with Lock/Unlock privileges unlocks it.'

Missing Data Codes

Missing Data Codes can be set up in the **Additional Customizations** menu available on the “Project Setup” tab

The screenshot displays the REDCap Project Setup interface with four main sections:

- Project Home**, **Project Setup**, **Other Functionality**, and **Project Revision History** navigation tabs.
- Main project settings**: Includes a "Not started" status, "Enable" buttons for "Use surveys in this project?" and "Use longitudinal data collection with defined events?", a "VIDEO: How to create and manage a survey" link, and a "Modify project title, purpose, etc." button.
- Design your data collection instruments**: Includes a "Not started" status, instructions on using the Online Designer or Data Dictionary, and buttons for "Go to Online Designer", "Data Dictionary", and "Explore the REDCap Shared Library".
- Enable optional modules and customizations**: Includes an "Optional" status, "I'm done!" button, and a list of modules with "Enable" or "Disable" buttons: "Repeatable instruments", "Auto-numbering for records" (checked), "Scheduling module (longitudinal only)", "Randomization module", "Designate an email field for sending survey invitations", and "Additional customizations" (circled in orange). Below this is a section for "Settings displayed to Administrators only" with an "Enable" button for "Twilio SMS and Voice Call services for surveys".

Missing Data Codes

Once in the Missing Data Codes section, you can add from a list of standard codes that designate data quality issues OR create your own, using letters and / or numbers

M Missing Data Codes: Set up your missing data codes for this project

Fields that have a blank/missing value may be marked with a custom 'Missing Data Code' to note why the value is blank. These missing codes may be used to aid in data analysis by specifying why a field lacks a value. To enable this feature below, enter both the codes AND their labels for all the categories of missing data that you wish to use in this project. The missing codes should be coded just like the choices of a multiple choice field with *code + comma + label*, in which the codes can only have letters, numbers, dots, dashes, and underscores (e.g., '-999, Not asked' or 'UNK, Unknown'). If no codes are entered, this feature will remain disabled.

[Read more detailed instructions.](#)

Missing Data Codes

Add code from standardized list of missing data codes (optional suggestions):

Add	NI	No information
Add	INV	Invalid
Add	UNK	Unknown
Add	NASK	Not asked
Add	ASKU	Asked but unknown
Add	NAV	Temporarily unavailable

Missing Data Codes

Codes are added in the same format as entries in a dropdown menu, with the **value** coming before a comma, and the **label** coming after (ie, “**-999, Custom Code for Missing**”)

M Missing Data Codes: Set up your missing data codes for this project

Fields that have a blank/missing value may be marked with a custom 'Missing Data Code' to note why the value is blank. These missing codes may be used to aid in data analysis by specifying why a field lacks a value. To enable this feature below, enter both the codes AND their labels for all the categories of missing data that you wish to use in this project. The missing codes should be coded just like the choices of a multiple choice field with *code + comma + label*, in which the codes can only have letters, numbers, dots, dashes, and underscores (e.g., '-999, Not asked' or 'UNK, Unknown'). If no codes are entered, this feature will remain disabled.

[Read more detailed instructions.](#)

Missing Data Codes

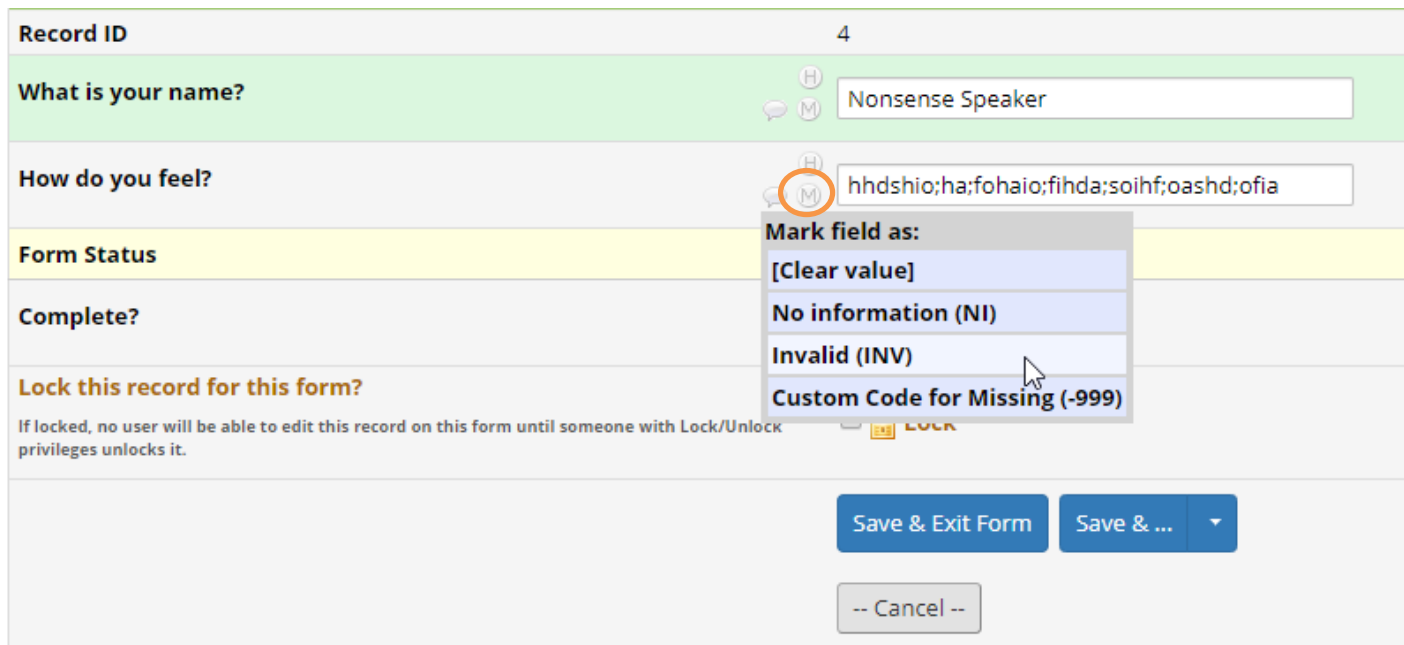
NI, No information
INV, Invalid
-999, Custom Code for Missing

Add code from standardized list of missing data codes (optional suggestions):

Add	NI	No information
Add	INV	Invalid
Add	UNK	Unknown
Add	NASK	Not asked
Add	ASKU	Asked but unknown
Add	NAV	Temporarily unavailable

Missing Data Codes

- If your project has Missing Data Codes enabled, you will see an “M” next to all data fields. Clicking this will allow you to select one of your standard codes.



The screenshot displays a data entry form with the following fields and actions:

- Record ID:** 4
- What is your name?:** Nonsense Speaker (with an 'M' icon next to the input field)
- How do you feel?:** hhdshio;ha;fohaio;fihda;soihf;oashd;ofia (with an 'M' icon next to the input field)
- Form Status:** (Yellow background)
- Complete?:** (Grey background)
- Lock this record for this form?:** (Text with a lock icon and a 'LOCK' button)

A dropdown menu is open over the 'How do you feel?' field, titled "Mark field as:", with the following options:

- [Clear value]
- No information (NI)
- Invalid (INV)
- Custom Code for Missing (-999)

At the bottom of the form, there are buttons for "Save & Exit Form", "Save & ..." (with a dropdown arrow), and "-- Cancel --".

- This can be done both when entering new data, or when accessing data from a submitted survey

Missing Data Codes

- Once selected, the code will become the field's value

Record ID	4 <small>To rename the record, see the record action drop-down at top of the Record Home Page.</small>
What is your name?	<input type="text" value="Nonsense Speaker"/>
How do you feel?	<input type="text" value="INV"/> Invalid (INV)

- However, the original value of the field will be preserved via the “History” (H) button and the Logging page

Data History for variable "feel" for record "4" ✕

Listed below is the history of all data entered for the variable **"feel"** for Record ID **"4"**. The data history results are sorted from earliest to most recent.

Date/Time of Change	User	Data Changes Made
01/09/2020 19:18:30		Missing Data Code entered: Invalid (INV)
01/09/2020 19:18:45 <small>(most recent data change)</small>		dsajkfjds;lgfkj;aj

Missing Data Codes

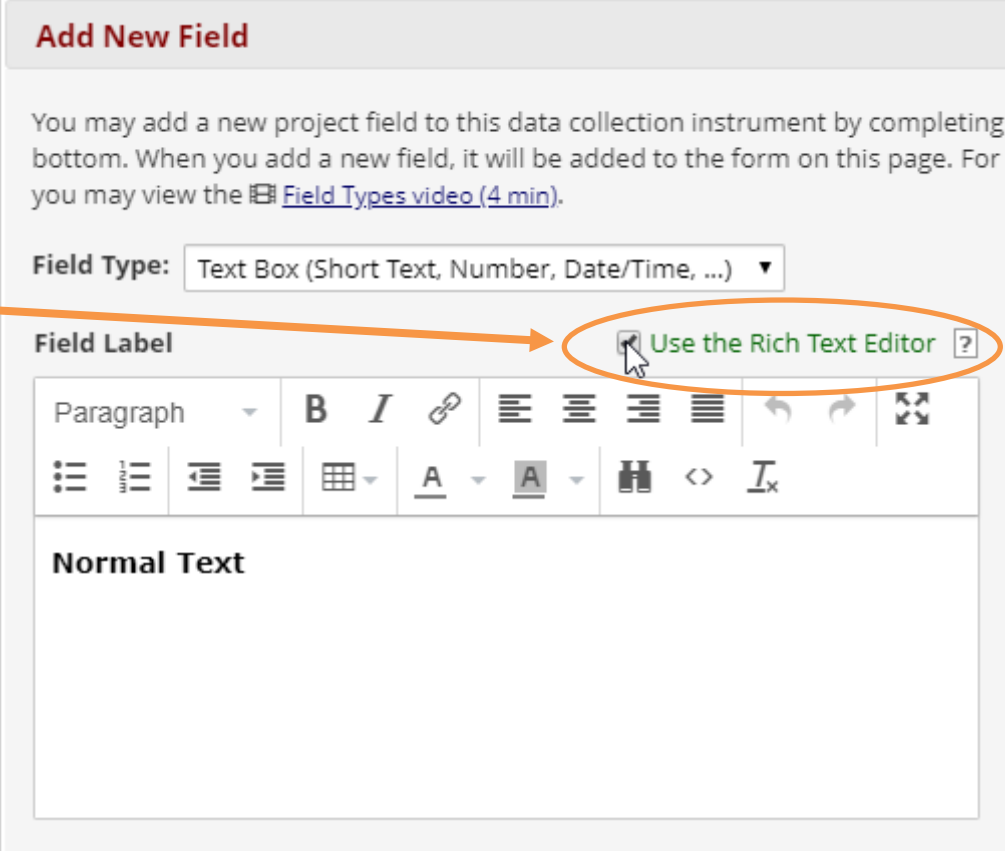
- The Data Quality Rules do not count Missing Data Codes as “Blank Values”, but test for them with a new rule, **Rule I**.

Data Quality Rules		Execute rules: <input type="button" value="All"/> <input type="button" value="All except A&B"/> <input type="button" value="Clear"/>			
		Apply to: -- All records -- ▼			
Rule #	Rule Name	Rule Logic (Show discrepancy only if...)	Real-time execution <input type="checkbox"/>	Total Discrepancies	Delete rule?
A	Blank values*	-		<input type="button" value="Execute"/>	
B	Blank values* (required fields only)	-		<input type="button" value="Execute"/>	
C	Field validation errors (incorrect data type)	-		<input type="button" value="Execute"/>	
D	Field validation errors (out of range)	-		<input type="button" value="Execute"/>	
E	Outliers for numerical fields (numbers, integers, sliders, calc fields)**	-		<input type="button" value="Execute"/>	
F	Hidden fields that contain values***	-		<input type="button" value="Execute"/>	
G	Multiple choice fields with invalid values	-		<input type="button" value="Execute"/>	
H	Incorrect values for calculated fields	-		<input type="button" value="Execute"/>	
I	Fields containing "missing data codes"	-		<input type="button" value="Execute"/>	

- A new function usable in logic and calculations, **isblankormissingcode()**, returns true if the specified variable is empty **or** has a missing data code

Rich Text Editing

- REDCap now makes it easier to use HTML formatting in the online designer and Survey Invitation settings
- By clicking the box, you can see options for text formatting
- In REDCap all field labels are **bold** by default; this will now be visible and easier to change



Add New Field

You may add a new project field to this data collection instrument by completing bottom. When you add a new field, it will be added to the form on this page. For you may view the [Field Types video \(4 min\)](#).

Field Type: Text Box (Short Text, Number, Date/Time, ...)

Field Label: Use the Rich Text Editor ?

Paragraph **B** *I*

A **A** `<>` *I*_x

Normal Text

The screenshot shows the 'Add New Field' interface in REDCap. An orange arrow points from the text 'you can see options for text formatting' to a checkbox labeled 'Use the Rich Text Editor' which is circled in orange. Below the checkbox is a rich text editor toolbar with various icons for text formatting and alignment. The text area below the toolbar contains the words 'Normal Text'.

Rich Text Editing

In addition to text formatting, the Rich Text Editor also makes it easier to add links and tables, and allows you to view the HTML Code that it produces

Field Label Use the Rich Text Editor ?

Paragraph **B** *I*

A *I*x

Normal Text

Unbolded|

Italicized

This	is	a	table
to	fill	with	text



Source code ✕

```
<p>Normal Text</p>
<p><span style="font-weight: normal;">Unbolded</span></p>
<p><em>Italicized</em></p>
<table style="border-collapse: collapse; width: 100%;" border="1">
<tbody>
<tr>
<td style="width: 25%;">This</td>
<td style="width: 25%;">is</td>
<td style="width: 25%;">a</td>
<td style="width: 25%;">table</td>
</tr>
<tr>
<td style="width: 25%;">to&nbsp;</td>
<td style="width: 25%;">fill</td>
<td style="width: 25%;">with&nbsp;</td>
<td style="width: 25%;">text</td>
</tr>
</tbody>
</table>
<p>&nbsp;</p>
```

Ok Cancel

Rich Text Editing

- If you unselect the “Use Rich Text Editor” checkbox, your field will revert to the HTML code that was produced; *this will not affect how your field looks to a form / survey user*

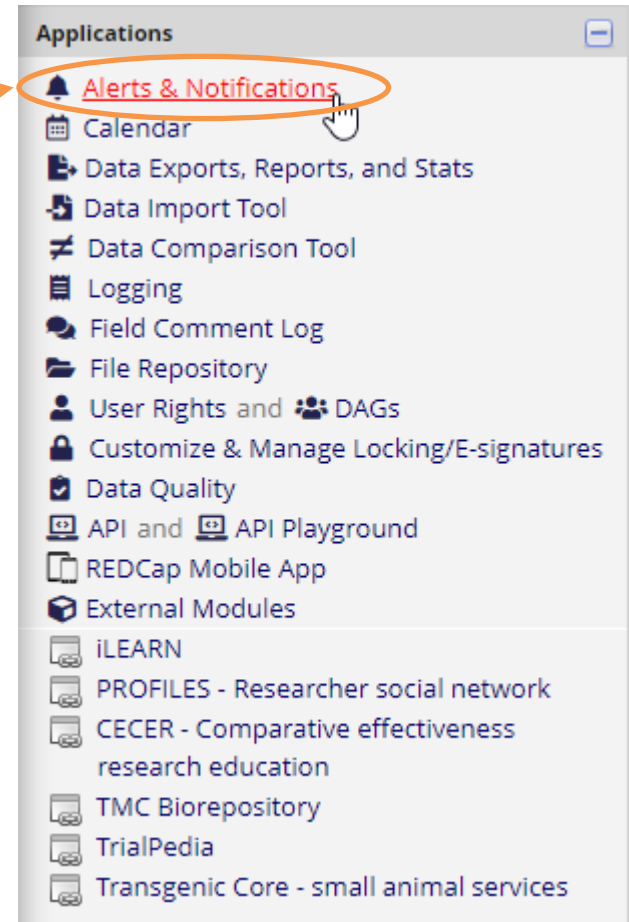
Field Label Use the Rich Text Editor ?

```
<p>Normal Text</p> <p><span style="font-weight:
normal;">Unbolded</span></p> <p><em>Italised</em></p> <table
style="border-collapse: collapse; width: 100%;" border="1"> <tbody> <tr>
<td style="width: 25%;">This</td> <td style="width: 25%;">is</td> <td
style="width: 25%;">a</td> <td style="width: 25%;">table</td> </tr> <tr>
<td style="width: 25%;">to&nbsp;</td> <td style="width: 25%;">fill</td> <td
style="width: 25%;">with&nbsp;</td> <td style="width: 25%;">text</td>
</tr> </tbody> </table> <p>&nbsp;</p>
```

- You can disable and re-enable the editor as desired

Alerts and Notifications

- REDCap now allows you to send out e-mail messages through its **Alerts and Notifications** section, accessible via the left-hand column, which are configurable and allow diverse triggers
- Alerts can be sent to **users, study staff, participants, and anyone else**, and allow for complex piping and formatting



Alerts and Notifications

Once on the “Alerts and Notifications” page, press the “Add New Alert” button to customize a new e-mail

Alerts & Notifications

The Alerts & Notifications feature allows you to construct alerts and send customized email notifications. These notifications may be sent to one or more recipients and can be triggered or scheduled when a form/survey is saved and/or based on conditional logic whenever data is saved or imported. When adding/editing an alert, you will need to 1) set how the alert gets triggered, 2) define when the notification should be sent (including how many times), and 3) specify the recipient, sender, message text, and other settings for the notification. For the message, you may utilize customized options such as rich text, the piping of field variables (including Smart Variables), and uploading multiple file attachments. [Learn more](#)



The screenshot shows the Alerts & Notifications interface. At the top, there are two tabs: "My Alerts" (with a bell icon) and "Notification Log" (with a grid icon). Below the tabs is a green button labeled "+ Add New Alert". To the right of the button is a checkbox labeled "Show deactivated alerts".

All active alerts you have will be displayed here; you can choose to deactivate and restore alerts as needed

Alerts and Notifications

Alerts are 100% customizable, including their **name**, **schedule**, **trigger**, **message** (full HTML support), and **recipients** (can choose to use piping, CC, and BCC)

Create new alert

You may define the settings for your alert in Steps 1-3 below. After clicking the Save button at the bottom, your alert will immediately become active and may be triggered at any time thereafter. If you would like to remove or stop using an alert, it may be deactivated at any time. You may modify an existing alert at any time, even after some notifications have already been sent or scheduled.

Title of this alert:

STEP 1: Triggering the Alert

How will this alert be triggered?

- When a record is saved on a specific form/survey*
- When a record is saved on a specific form/survey with conditional logic*
- Using conditional logic during a data import or data entry

Trigger the alert...

when is saved with any form status (excludes data imports)

* The alert will not be re-triggered if the form/survey is saved again, unless it is set to send "Every time" in Step 2 below.

STEP 2: Set the Alert Schedule

When to send the alert?

- Send immediately
- Send on next at time
- Send after lapse of time: days hours minutes
- Send at exact date/time:

Send it how many times?

- Just once
- Every time the form/survey in Step 1 is saved (excludes data imports)
- Multiple times: Send every days after initially being sent

STEP 3: Message Settings

Email From: * must provide value

Email To: * must provide value
[+ Show more options](#)

Or manually enter emails:

Subject: * must provide value

Message: * must provide value

Prevent piping of data for Identifier fields [?](#)

In the subject or message, you may use [Piping](#) and [SmartVariables](#)
Example: Hi {first_name}! Please complete this survey: {survey-link:followup_survey}

[Add attachments](#)

Optional

Alert expiration:

This alert will be auto-deactivated at the specified date/time above. Note: This will cause any already-scheduled notifications not to be sent after the expiration time.

Alerts and Notifications

The logic for alerts can be made arbitrarily complex to ensure that it is only sent out under exact circumstances

Title of this alert:

STEP 1: Triggering the Alert

How will this alert be triggered?

- When a record is saved on a specific form/survey*
- When a record is saved on a specific form/survey with conditional logic*
- Using conditional logic during a data import or data entry

Trigger the alert...

when is saved with any form status (excludes data imports)

while the following logic is true:

(e.g., [age] > 30 and [sex] = "1") [How to use 'stop logic' to disable a scheduled alert](#)

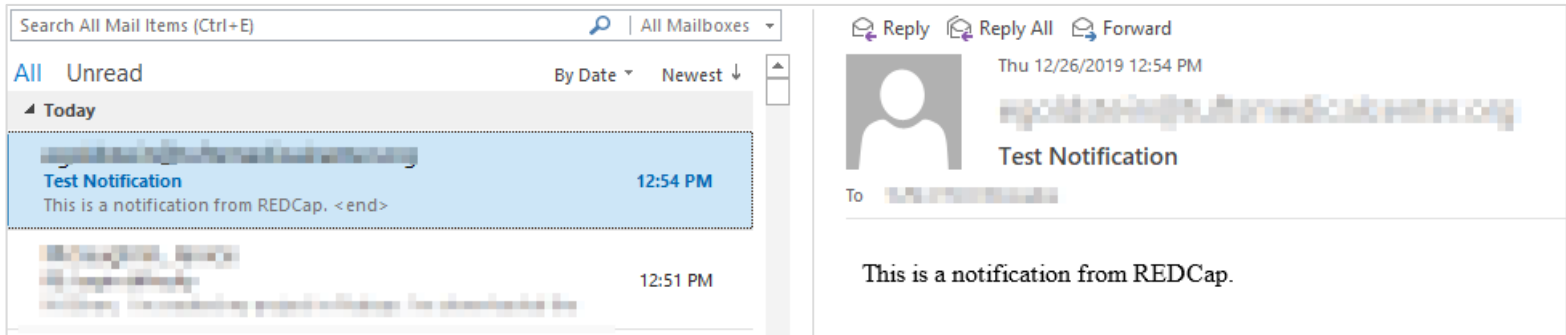
✓ Valid

Ensure logic is still true before sending notification? [?](#)

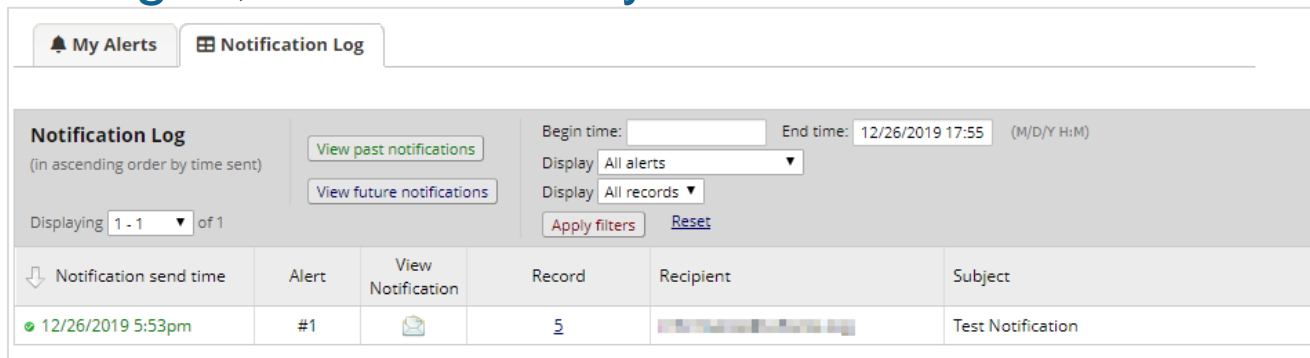
* The alert will not be re-triggered if the form/survey is saved again, unless it is set to send "Every time" in Step 2 below.

Alerts and Notifications

- Messages are instantly sent via e-mail to the recipient based on the conditions met and the schedule time set



- The **notification log** shows all previous and scheduled messages, with the ability to filter and see all messages



REDCapcha

- REDCap now supports the use of Google reCAPTCHA to prevent robots from opening public survey links

Survey Distribution Tools

[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.

Public Survey URL:

Protect the public survey using the Google reCAPTCHA feature

- This is under “Survey Distribution Tools” (previously “Manage Survey Participants”)

REDCaptcha

- When this is enabled, anyone entering your survey via the public link (but only the public link) must click a button to ensure that they are not a robot before continuing
- This prevents robots from automatically filling out survey links you distribute

Public Survey for Research Study

To proceed to the survey, please check off the box and click the button below.

I'm not a robot

reCAPTCHA
Privacy - Terms

Begin survey



Public Survey for Research Study

To proceed to the survey, please check off the box and click the button below.

I'm not a robot

reCAPTCHA
Privacy - Terms

Begin survey

Improved Reports: User Rights

Reports now have descriptions and separate viewing and editing rights management

Name of Report:	<input type="text"/>
Description (optional): Displayed on page below report name	<input type="text"/> HTML may be used in order to add links or to add style to text. Expand

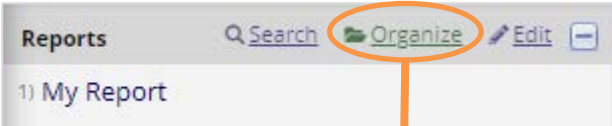
STEP 1
+ User Access: Choose who can edit and view this report
👁 View Access: Choose who sees this report on their left-hand project menu ?
<input checked="" type="radio"/> All users - OR - <input type="radio"/> Custom user access (Choose specific users, roles, or data access groups who will have access)
✍ Edit Access: Choose who can edit, copy, or delete this report (requires user to have 'Add/Edit/Organize Reports' privileges)
<input checked="" type="radio"/> All users - OR - <input type="radio"/> Custom user access (Choose specific users, roles, or data access groups who will have access)

Improved Reports: Searches and Sorting

You can now search through reports in the left-hand column



And organize them into folders



Report Folders

Report Folders are a way to organize your reports by putting them into groups. You may create new folders below and then assign reports to them on the right. A report can be assigned to multiple folders at the same time. To reorder your folders, you can drag and drop them in the left-hand table. Note: All users in this project will be able to see the folders so long as they have 'View Access' to at least one report in the folder.

STEP 1: Create Folders

My Report Folders New Folder **Add**

Test Reports		
--------------	--	--

STEP 2: Assign Your Reports To Folders

Test Reports Hide reports already assigned

<input type="checkbox"/>	Select reports below to add to this folder
<input type="checkbox"/>	My Report

Improved Reports: Checkboxes

By default, when viewing reports with checkboxes REDCap will split each box into its own column

Checkbox Field

- Answer 1
- Answer 2
- Answer 3
- Answer 4
- Answer 5

→

Checkbox Field				
Answer 1 checkbox__1	Answer 2 checkbox__2	Answer 3 checkbox__3	Answer 4 checkbox__4	Answer 5 checkbox__5
Unchecked (0)	Checked (1)	Unchecked (0)	Checked (1)	Unchecked (0)
Checked (1)	Unchecked (0)	Checked (1)	Checked (1)	Unchecked (0)

There is now an option to consolidate these into one column

Additional report options (optional)

- Include the survey identifier field and survey timestamp field(s)?
- Combine checkbox options into single column of only the checked-off options (will be formatted as a text field when exported to stats packages)

↓

Record ID record_id	Checkbox Field checkbox
<u>5</u>	Answer 2, Answer 4 (2, 4)
<u>6</u>	Answer 1, Answer 3, Answer 4 (1, 3, 4)

New Action Tags

REDCap now features several new **Action Tags** to change field behavior:

- **@HIDDEN-PDF** – Hides field from all PDF downloads
- **@NOMISSING** – Disables missing data codes in field

New Action Tags

- **@NOW_SERVER** – Loads the server's date / time into a text field
- **@TODAY_SERVER** – Loads the server's date into a text field
- **@NOW_UTC** – Loads the current UTC/GMT date / time into a text field
- **@TODAY_UTC** – Loads the current UTC / GMT date into a text field

Edit Field

You may add a new project field to this data collection instrument by completing the form below. When you add a new field, it will be added to the form on this page. For more information, you may view the [Field Types video \(4 min\)](#).

Field Type: Text Box (Short Text, Number, Date/Time, ...) ▼

Field Label Use the Rich Text Editor [?](#)

The server's time (useful for capturing consistent time regardless of user's time zone / settings!)

Action Tags / Field Annotation (optional)

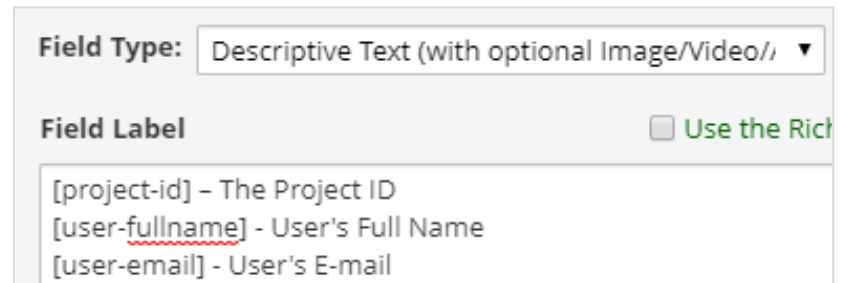
@NOW-SERVER

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

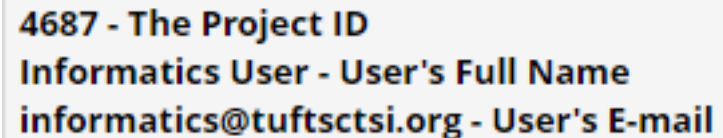
New Smart Variables

REDCap also has several new **Smart Variables** that can help you collect or show system-level information:

- **[project-id]** – The Project ID (i.e., PID) of the current project
- **[user-fullname]** – The current user's first and last name
- **[user-email]** – The current user's primary email



The screenshot shows the REDCap field configuration interface. At the top, there is a 'Field Type' dropdown menu set to 'Descriptive Text (with optional Image/Video/...)'. Below this is a 'Field Label' section with a checkbox labeled 'Use the Rich Text Editor' which is unchecked. A text area below contains the following text: '[project-id] - The Project ID', '[user-fullname] - User's Full Name', and '[user-email] - User's E-mail'. An orange arrow points from the text area down to the rendered output box.



The rendered output shows the smart variables populated with actual data: '4687 - The Project ID', 'Informatics User - User's Full Name', and 'informatics@tuftsctsi.org - User's E-mail'.

New Smart Variables

- **[redcap-base-url]** – The base web address for REDCap
- **[redcap-version]** – The current REDCap installation's version
- **[redcap-version-url]** – The base web address with the version
- **[survey-base-url]** – The base web address for surveys

[redcap-base-url] - Base URL
[redcap-version] - Version Number
[redcap-version-url] - URL With Version
[survey-base-url] - Survey URL



<https://collaborate.tuftsctsi.org/redcap/> - Base URL

9.5.5 - Version Number

https://collaborate.tuftsctsi.org/redcap/redcap_v9.5.5/ - URL With Version

<https://collaborate.tuftsctsi.org/redcap/surveys/> - Survey URL

New Smart Variables

- **[instrument-name]** – The unique instrument name of the current survey / form
- **[instrument-label]** – The label of the current survey / form
- **[survey-title]** – The survey title of the instrument (can add parameter to see the title of another instrument in the project with surveys enabled)

[instrument-name] - Instrument Name
[instrument-label] - Instrument Label
[survey-title] - Survey Title



My Instrument - Instrument Name
My Instrument - Instrument Label
My Survey - Survey Title

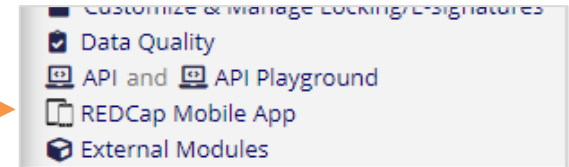
GDPR Compliance Options

- GDPR (General Data Protection Regulation) is a set of regulations used in the EU for data privacy
- Among them is the “**Right to be Forgotten**”, which mandates the deletion of certain data upon request
- There are options to automatically remove logs of deleted records or automatically delete data after a period of time
- These options **must be enabled by an administrator**, so contact informatics@tuftsctsi.org for more information



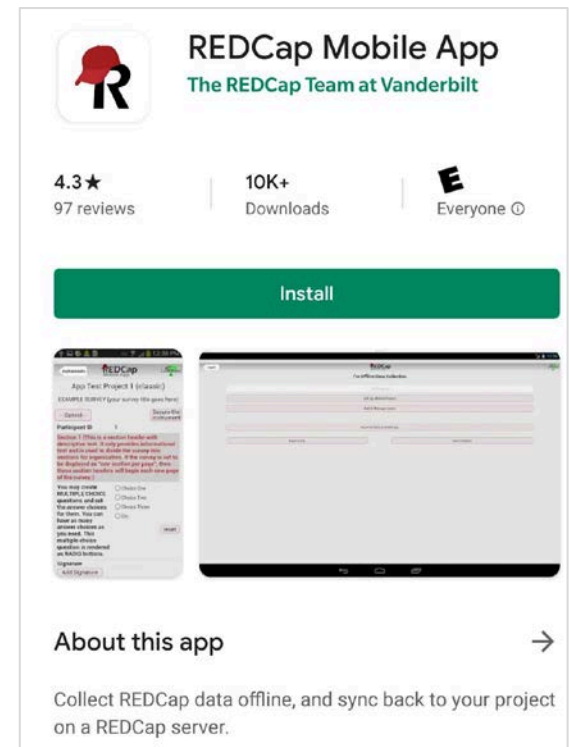
REDCap Mobile App

- Projects on Tufts CTSI's REDCap installation can now use the **REDCap Mobile App** for data collection



- This is intended for **data collection without internet access**. It is not intended for general data collection, and is **not** compatible with surveys

- To get more information about the **Mobile App**, please see [this guide](https://tuftsctsi.s3.amazonaws.com/redcap/REDCap Powerpoints/REDCap_Mobile_App_Guide_20200212.pdf) (URL: https://tuftsctsi.s3.amazonaws.com/redcap/REDCap Powerpoints/REDCap_Mobile_App_Guide_20200212.pdf)



...And Many More Features!

- New downloadable test batteries from the REDCap Shared Library
- More settings information stored in Project XML for better backups
- Support for Traditional Chinese in PDF's
- Expanded “Help and FAQ” page
- Ability to set .csv formatting parameters when exporting
- Option to preserve line breaks in data exports
- “Expand” and “Collapse” buttons for cleaner-looking codebooks
- Improved icons for better look-and-feel and easier navigation
- Customizations for displaying the “Secondary Unique Field”

To see the full release notes, please look at our website at tuftsctsi.org/research-services/informatics/redcap-research-electronic-data-capture/

Request A REDCap Account

To request a REDCap user account or receive other REDCap support, please follow the Request Services link located on our website at www.tuftsctsi.org and we will contact you within 48 hours.

Thank you!