REDCap
Research Electronic Data Capture

New Features & Improvements

Version LTS 14.5.15
November 6, 2024

AT THE FOREFRONT UChicago Medicine
THE UNIVERSITY OF CHICAGO BIOLOGICAL SCIENCES
CENTER FOR RESEARCH INFORMATICS

NEW FEATURES:

Enhanced e-Consent Framework and PDF Snapshot Functionality

Overview - A new page named "Settings for e-Consent & PDF Snapshots" (linked from the Online Designer) serves as the new location where users can enable and set up the e-Consent Framework for a given survey and also set up triggers for storing PDF Snapshots. In previous versions, the e-Consent Framework and PDF Snapshot settings all existed on the Survey Settings page as several disparate options, but now they have been consolidated on this new page as two separate tabs. While these two exist as separate features, there is some overlap of functionality since the e-Consent Framework does ultimately store a copy of the PDF Snapshot for the e-Consent response. In addition to moving these features to the new page, both have been given enhancements, which are detailed below. View a 5-minute overview video of the new features:
https://redcap.link/econsent2vid

Overall Benefits of the New Features - Streamlined Consent Process: Simplify and enhance the electronic consent process for both researchers and participants. Improved Data Integrity: Ensure secure and organized storage of consent forms and survey responses. Enhanced Compliance: Meet regulatory standards such as ICH and FDA requirements with robust version control and audit trails.

Additional Enhanced e-Consent Framework Features:

- Customizable Consent Forms with Version Control: Design consent forms and manage new versions of consent forms while maintaining historical versions for audit purposes. During the setup process for consent forms, their location can be set in relation to a single Descriptive field on the survey. A consent form can exist as an inline PDF or as rich text. A consent form can be associated with a specific MLM language and/or a Data Access Group if the project users wish to have the consent form be used for a specific language (chosen by the participant) and/or DAG (to which the record has been assigned). This allows for language-specific consent forms and DAG-specific consent forms, if needed.
- Audit Trails: Improved, detailed audit trails for consent form completions and PDF snapshot generations.
- When a user views a completed/signed e-Consent response on a data entry form, in which a consent form was used on the survey, near the top of the page will be displayed the version of the consent form that was used. Also, the consent form itself (i.e., the inline PDF or rich text) displayed on the page will always be the consent form under which the participant originally consented. For example, if a participant consented using consent form v2.0, then even though a new consent form (v3.0) has been added to the project at some point afterward, the data entry form for that participant's response will always display consent form v2.0 so that the user will always see the survey response and its consent form exactly as the participant originally viewed it.
- When reviewing draft mode changes, if a consent form's anchor Descriptive field is deleted or moved to another instrument, it now gets listed as a critical issue in the list of drafted changes.
- Custom Headers and Footers: Add custom headers and footers to PDF snapshots created via the e-Consent Framework, including the use of text fields, smart variables, and piping.
- Custom Notes: An optional custom notes field can be utilized for each e-Consent survey for bookkeeping purposes. The custom notes are neither displayed on the survey nor anywhere else in the application.

- File Naming Customization: Customize the file names of PDF snapshots for e-Consent responses using static text or piping, appended with date-time stamps.

New action tag @CONSENT-VERSION - This action tag represents the version of the consent form being used by the e-Consent Framework for the current e-Consent survey context (i.e., current record, event, survey, data access group, MLM language, etc.). NOTE: This action tag only adds a new value to the field when its field value is blank and only when the instrument is being completed in an e-Consent survey context. Also, this action tag can only be used if the e-Consent Framework has been enabled for a survey and only if one or more consent forms have been defined for that survey.

New action tag @SHOWCHOICE - When applied to a multiple-choice field, this action tag will hide all choices except for the ones listed in its argument. This action tag is useful if you wish to only show a subset of choices depending on some logic (e.g., depending on data access groups) via the IF action tag. The format must follow the pattern @SHOWCHOICE='??', in which the coded values should be inside single or double quotes for the choice(s) you wish to show. If more than one choice needs to be shown, then provide all the coded values separated by commas. For example, to show the choice 'Monday (1)', you would have @SHOWCHOICE='1', but if you wanted to additionally show 'Tuesday (2)', you would have @SHOWCHOICE='1,2'. NOTE: The @SHOWCHOICE action tag supports piping into its argument
- e.g., @SHOWCHOICE=[my_checkbox:checked:value].

New action tag @INLINE-PREVIEW - When this action tag is added to File Upload fields or Description Text fields, a preview button will be displayed next to the field on survey pages and data entry forms if the uploaded file is an image or PDF file. Clicking the preview button will immediately display the image/PDF inline on the page, after which it can be closed again, if desired. This allows users/participants to view the file without having to download it to their local device.

Background Data Import in the Data Import Tool, users may now alternatively import data using an asynchronous background process (as opposed to the existing real-time process). The background process is better for large data files. The background process will email the user after the data file has been fully imported, and the email will note any errors that may have occurred during the import process. During the background data import process, which is performed by several simultaneous cron jobs, each record will be imported one at a time. If there is any error with a record being imported, none of that individual records data will be imported, after which the user will be able to view all the errors with the option to re-download the records/data that failed to import, thus allowing the user to fix the data and attempt to import it again. Note: The background data import works with the Reason for Change project-level feature, which requires a reason for any changes made to an existing record. The feature is currently only available in the user interface (not in the API), but it may be available for the API in the future. If the background data import has begun, the user who initiated the import (or an administrator) can cancel the import process at any time. However, any data that was imported by the import process prior to it being canceled will not be undone after it is canceled. All changes made by the process up until cancellation are permanent.

Background Data Import option for the API - Similar to using the Background Data Import on the Data Import Tool page, users may now utilize the feature when making a call to the Import Records API method. They can simply pass the API parameter "backgroundProcess" with a value of 1 (for Yes) or 0 (for No, which is the default) to invoke this option. The API will return a "success" message with "true" or "false" regarding if the data was successfully accepted. Note: This option works with any data format: CSV, JSON, or XML.

New piping parameters for date/datetime fields: :year - Returns the year component of a date/datetime field e.g., [dob:year]. :month - Returns the month component of a date/datetime field e.g., [visit_datetime:month]. :day - Returns the day component of a date/datetime field – e.g., [visit_date:day]

New special functions for date/datetime fields: year() - Returns the year component of a date/datetime field e.g., year([dob]). month() - Returns the month component of a date/datetime field e.g., month([visit_datetime]). day() - Returns the day component of a date/datetime field e.g., day([visit_date])

New math functions mod (dividend,divisor) - Modulo - Returns the remainder of the (integer) division (modulo) dividend/divisor. Both values must be integers. E.g. mod(10,4) will result in 2 because 2 is the remainder of 10 divided by 4. exponential (number) - Exponential of e - Returns "e" (Euler's Number) raised to the power of a number: e^x. Note: The value of the exponent x must be a number. E.g. exponential(1) will return 2.718281828459045.

New text string functions replace_text (haystack, search, replace) - Replaces parts of a text value with a specified replacement text value - Finds text ("search") inside another text ("haystack") and replaces all found occurrences with the given text ("replace"). For example, assuming [field1] has a value of "Paul Taylor, Rob Taylor", replace_text([field1], "Taylor", "Harris") would result in "Paul Harris, Rob Harris". Note: This function performs a case-sensitive replacement. Additionally, you can search for line breaks (e.g. in Notes fields) with "\n". concat_ws (separator, text, text, ...) - Joins the text from multiple text strings with a separator - This works exactly like concat but inserts the separator in between each concatenated item. For example, concat_ws(" and ", [veggie1], [veggie2], "Tomatoes") might result in "Peas and Carrots and Tomatoes".

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IMPROVEMENTS:

1. More user experience improvements for the Online Designer, including a new dismissible popup that alerts the user about the new "drag-n-drop" behavior for moving fields in the Online Designer. Additionally, users can now limit the deactivation/reactivation to certain action tags in the Quick Modify Field(s) popup. In previous versions, users could only deactivate/reactivate all action tags for the selected fields, but now users may provide specific actions tags that will be deactivated/reactivated.
2. In the "Move Field" dialog in the Online Designer, the user may now choose "Insert at top of this form" or (if the field is part of a matrix) "Insert at the top of the matrix group" from the field drop-down.
3. Improvements to the Online Designer General user interface improvement that utilizes newer icons. New "Go to field" feature (invoked via Ctrl-G or Cmd-G) allows users to search for a variable by name and then navigate directly to its location in the Online Designer, even if the field is on a different instrument than the current one. Improved and expanded "Quick modify field(s)" popup will appear when users Ctrl-click (or Cmd-click) one or more fields or check the new checkboxes located on the far right of each field. Additions to this popup include the ability to edit the following for multiple fields: branching logic, action tags/field annotation, custom alignment, required status, identifier status, and multiple choice options (including the ability to copy choices - with new choice of location for copied fields, import choices from an existing field, convert a field to a different multiple choice field, and also append new choices using a full-blown choice editor). NOTE: When updating actions tags for one or more fields via the "Quick modify field(s)" popup, there is a new action tag named @DEACTIVATED-ACTION-TAGS that is only used in the Online Designer for the purpose of deactivating (and thus possibly reactivating) action tags. The difference between deactivating action tags and removing action tags from fields is that deactivating them leaves the action tags in a state/format so that they can be easily reactivated later, whereas removing action tags would make it very difficult to restore the action tags of many fields having many different action tags. For example, if a field has the @HIDDEN action tag and is then deactivated, its field annotation will then appear as the following: @DEACTIVATED-ACTION-TAGS @.OFF.HIDDEN, and if reactivated, it will go back to @HIDDEN again. The "Quick modify field(s)" popup also includes an additional, large selector popup to allow users to select many fields on the current instrument that match certain criteria by clicking one or more icons (e.g., clicking the slider icon and then clicking the "add new selections" button will automatically select all slider fields on the page to use for the "Quick modify field(s)" popup). This makes it easy to select many fields on the page very quickly when they all match a certain criteria (i.e., field type, field validation). The drag-field feature to "drag-n-drop" a field to a new location on the instrument now operates differently. Inside of clicking and holding anywhere on a field, the user must now click and hold specifically on the Move icon for the given field in order to ready the field for being moved.
4. "Survey Notifications" and "Survey Confirmation Emails" were added as new filter options to the "Type" drop-down filter on the Email Logging page. Note: This change is not retroactive, meaning that any survey notification emails or confirmation emails that were sent prior to the upgrade to REDCap 14.4.0 will not show up when filtering by these new options but will instead only show up when Type is set to "all types".
5. The Email Logging page now has its own separate user privilege. Previously, only users with "User Rights" privileges could access the Email Logging page. Now, users must explicitly be given "Email Logging" privileges in order to access the Email Logging page. Note: During the upgrade to REDCap 14.4.0 or higher,

any users with "User Rights" privileges will automatically be given "Email Logging" privileges in order to keep continuity with their current access to the Email Logging page.

6. Ability to import clinical notes via CDIS - Users may now import clinical note documents for patients using Clinical Data Pull or Clinical Data Mart. Note: If using Epic, the institution will be required to upgrade to v4 of the REDCap app in the Epic "Show Room" (formerly known as "App Orchard").
7. For users that are not assigned to a Data Access Group, the Data Quality page will now display a DAG drop-down filter (next to the record drop-down filter) to allow them to apply any Data Quality rule only to records assigned to the selected DAG.
8. In the Online Designer when Ctrl-clicking multiple checkbox or radio fields to display the "Modify multiple fields" options, a new option to "Convert to matrix group" will appear, thus allowing users to merge the selected fields into a matrix. When merging fields into a matrix, the confirmation dialog will note that only the choices for the first field selected will be preserved (in case the selected fields have different choices). Additionally, the action will remove all field notes from the fields and will also remove all section headers (except for the first field's section header, if it exists).
9. In the Online Designer when editing a matrix of fields, a new button will appear at the bottom left of the "Edit Matrix of Fields" dialog that says "Save & split matrix into separate fields". When clicked, it will convert the matrix into separate fields.
10. When using the Data Resolution Workflow in a project, it has always been the case that the results of data quality rules would automatically "exclude" fields that have a data query with "closed" status. Many users have complained about this behavior and have stated that the discrepancies should still be displayed in the data quality rule results regardless of the field's data query status. From now on, such fields will no longer be automatically "excluded" simply because they have a data query with "closed" status.
11. In the Online Designer when viewing the fields of a specific instrument, a yellow star is now displayed to the right of the variable name for identifier fields to denote to users which fields are identifiers.
12. When clicking on a user's username in the user table on the User Rights page, in which the user is assigned to a user role, a "Remove from project" button was added inside the "User actions" popup that allows the user to be removed from a project directly without having to un-assign them from the role first.
13. The Codebook page now has checkboxes that can be toggled by the user to remember the collapsed state of the tables on the page on a per-project basis for the user
14. The rich text editor used throughout REDCap now has a new drop-down option in the editor's toolbar for setting the "font family" and "font size" of any text in the editor.
15. A few more pages were added to the "Navigate to page" widget to allow users to go to specific pages via PID and keyboard shortcuts.
16. The video "A Brief Overview of REDCap" was replaced with a new video.
17. The "Help & FAQ" page has been updated with new content.
18. When moving one or more fields in the Online Designer, a new option will appear in the field selection drop-down to allow the user to move a field to an empty instrument (i.e., an instrument with no defined fields). In previous versions, fields could only be moved to an instrument containing at least one field (not counting the Form Status field).
19. When copying a project via the Other Functionality page, a new note appears below the copy project option that says "NOTE: The new project will not contain the project's logging history (audit trail), but if

you wish to obtain it, you may freely download it any time at the top of the Logging page.". This will help users understand upfront that the logging does not get copied during this process

20. When uploading static attachment files to an alert on the Alerts & Notifications page, the maximum allowed attachment size has been increased from 10 MB to 20 MB. Please note that sending attachments larger than 10 MB might cause the email to be rejected by certain email providers.
21. When moving one or more fields in the Online Designer, a new option will appear at the end of the field selection drop-down to allow the user to auto-create an instrument while moving the field(s) to that new instrument. Note: The new instrument will be named "New Instrument" by default, although the user can always rename it after the fact.
22. API examples in C Sharp (C#) code were added to the API Playground.
23. In the Online Designer, the variable name for each field on the page is clickable, and when clicked, will copy the variable name to the user's clipboard.
24. In the Online Designer, when a user attempts to click into the variable name field in the Edit Field popup while the project is in production, the dialog that notes that the variable name is not editable when in production will now also display the variable name as clickable in the dialog's text, and when clicked, will copy the variable name to the user's clipboard.
25. In the Online Designer, when a user clicks on the green button "Field is embedded elsewhere on this page" on an embedded field in the table, the page will scroll up to where the field is embedded and flash a red border around the container field. This will make it easier for users to find where a field is embedded.
26. The Custom Event Label, if being used in a longitudinal project, will now display at the top of the data entry form in the yellow event bar. In previous versions, it only appeared above each event column on the Record Home Page. Now it appears in both places.
27. Users may now use "now" or "today" (wrapped in quotes) instead of a field variable in the special functions day(), month(), and year() in order to capture a specific date component of today's date.
28. New "Test Run" option when re-evaluating Alerts and Automated Survey Invitations - When performing the "Re-evaluate" feature for Alerts and ASIs, a new toggle that says, "Enable Test Run?" can be clicked in the dialog, which will perform a test run (dry run) to simulate what would have happened (e.g., schedule or send alerts/invitations) but without actually doing anything. This will allow users to feel more confident if they actually need to perform a real re-evaluation of Alerts or ASIs so that they know beforehand how many records will be affected during the re-evaluation. In addition, users may download a CSV file of all affected record names afterward, whether using the test run option or not.
29. The Project Home Page now contains an icon in the Current Users table to allow users to download the current user list as a CSV file.
30. All logged events concerning Alerts & Notifications will now additionally display the alert's Unique Alert ID in order to make it easier to discern alerts from each other if alerts are reordered or moved after being created (i.e., if their alert number changes over time).
31. The "Copy Project" page now contains more informational text when copying a project containing surveys. The new text explains that when copying all records, the survey completion time for any survey responses will not be copied with the normal project data because the completion times are considered to be equivalent to project logging, which never gets copied during this process.
32. New Read Only user privilege for the User Rights page- Users and roles can now be given Read Only access to the User Rights page, which will allow users to view the page but not be able to take any actions on the

page. Note: If a user is in a Data Access Group while viewing the page, it is still the case that they can only view users from their own DAG on the page.

33. When using the eConsent Framework on a survey, the certification page now says "Working..." until the inline PDF finally loads on the page. This will reduce confusion for participants in case the PDF takes an abnormal time to load.
34. If a project dashboard has been set as "public", a link icon will appear next to the project dashboard title on the left-hand project menu. If a user clicks the link icon, the public project dashboard will open in a new tab.
35. If a report has been set as "public", a link icon will appear next to the report title on the left-hand project menu. If a user clicks the link icon, the public report will open in a new tab.
36. Some help text was added to the Form Display Logic and Survey Queue instructions to inform users that their conditional logic will be evaluated at the record level and not within the context of an event or a repeating instance, which means that it is not possible to use relative instance or relative event Smart Variables - i.e., those with the name 'current', 'next', or 'previous', such as [next-instance] or [previous-event-name].
37. The PID number for a project is now displayed on the My Projects page for all user types, whereas in previous versions it was only displayed for admins (users with some kind of Control Center access.
38. For Descriptive Text fields on the Codebook page, the attachment's filename and its display format are now listed on the page if it has an attachment, and the media URL and its display format are now listed on the page if it has a media URL.
39. Improved user interface elements on the Codebook page. A new instrument table lists instrument names and also event designations, if longitudinal. The instrument and event tables are now collapsible. Additionally, the tables denote if an instrument is a repeating instrument or is designated to a repeating event, and the event table denotes if an event is a repeating event. All tables on the page are now collapsed by default.
40. The @HIDECHOICE action tag now supports piping into its argument -e.g., @HIDECHOICE=[my_checkbox:checked:value].
41. When downloading the Survey Queue settings via CSV file, the CSV filename now contains the project title and timestamp of the download.
42. When viewing the "View or Edit Schedule" tab on the Scheduling page when more than 10K drop-down options would be displayed in the already-scheduled drop-down list of records, in which the drop-down will display at all, the text on the page has been modified for better clarity since it was confusing regarding how to view an already-scheduled record in this situation.
43. When using the "Erase all data" feature on the Other Functionality page, it now lists the total number of records in the dialog so that the user is aware.
44. Form Display Logic Import/Export - Users can now export and import their Form Display Logic settings via a CSV file in the Online Designer. After clicking the Form Display Logic button on the page, it will reveal a drop-down list of options to 1) edit the FDL, 2) download the FDL as a CSV file, or 3) upload the FDL as a CSV file. This new feature will make it much easier for users to make modifications to their Form Display Logic when they have many instruments and/or events that they wish to utilize in the FDL.
45. Survey Queue Import/Export - Users can now export and import their Survey Queue settings via a CSV file in the Online Designer. After clicking the Survey Queue button on the page, it will reveal a drop-down list

of options to 1) edit the SQ, 2) download the SQ as a CSV file, or 3) upload the SQ as a CSV file. This new feature will make it much easier for users to make modifications to their Survey Queue when they have many instruments and/or events that they wish to utilize in the SQ.

46. When using the Field Bank in the Online Designer to search specifically within the NIH CDE Repository, a new checkbox option exists in the search utility called "Search NIH-Endorsed CDEs". If this search option is checked, REDCap will search only for fields that are "NIH-Endorsed" in the NIH CDE Repository. NIH-Endorsed CDEs have been reviewed and approved by an expert panel and meet established criteria.
47. When adding/editing a Descriptive Text field in the Online Designer, the text in the "Optional file attachment, image, audio, or video" section of the popup has been modified to instruct the user that the "Embed an external video" feature can be used for more than just videos but for websites and surveys too (i.e., the "Magic Box" feature, as some call it). The text has been changed to "Optional media to embed or attach:" and "Embed media (video, website, survey, etc.)", respectively. Other relevant text in the popup has also been modified to refer to "media" more generically rather than "video".
48. When setting up recurring Alerts & Notifications, users can now set the repeating interval value as a number with a decimal (in previous versions, the value could only be an integer). This will allow users to approximate the interval of a monthly recurring alert as 30.44 days since it is currently not possible for recurring alerts to be scheduled on exactly the same day and time each month. To help users, a note has been added in the repeating survey section of the alert setup dialog to inform them how to approximate a month as 30.44 days.
49. A note was added to the Smart Variable documentation, specifically for the charts, to denote that when using multiple fields in the chart, the data used in the chart will be naturally grouped from the same event and/or repeating instance. For example, if you're plotting age vs weight in a scatter plot in a longitudinal project, it will only create points in the plot where both the age value and weight value exist on the same event. If one or both values are missing from a given event in a record, then no point can be plotted for that given record.
50. Slight performance improvement when loading the Logging page in some projects.
51. Enhancements to the Codebook page - For longitudinal projects, a table of all events names is displayed near the top of the page. If events and/or missing data codes exist, the table of them may be included in or excluded from the page printout via a checkbox at the top right corner of their table. Also, in the printout of the page, the time and project title are now displayed.
52. When viewing the Survey Access Code dialog on the Public Survey Link page, users may now click a button to copy the QR code to their clipboard. Additionally, users may now click the QR code to download it or click a link below the QR code to download it in the higher resolution SVG format, if desired.
53. If a longitudinal project contains one or more records, and a user moves a field to a different instrument via the Online Designer, a warning will be displayed saying that moving fields to other instruments might potentially cause the orphaning of data, in which it tells the user to double-check their instrument-event mappings to ensure that no orphaning/data loss has occurred. And if it has, it tells the user that they can move the field back to its original instrument to restore any orphaned data.
54. When executing Data Quality rules, the Logging page now lists the specific DQ rule by name that was executed in the logged event, whereas previous versions merely stated "Execute data quality rule(s)" generically in the Logging.

55. The Data Import Tool page now provides options in Step 1 to download the Data Import Template with alternative delimiters, such as tabs and semicolons.
56. The full file name of a file uploaded to a File Upload field will be displayed when a user hovers over the file download link. This is helpful when the file name is very long and is thus not displayed in full on the page.
57. The Send-It page now checks the filesize of the file before the user attempts to upload it in order to ensure the file is not larger than the max allowed size. In previous versions, its filesize would only be checked after it had been uploaded.
58. The Data Import Tool page now provides options in Step 1 to download the Data Import Template with alternative delimiters, such as tabs and semicolons.
59. In longitudinal projects with Scheduling enabled, the "View or Edit Schedule" page will no longer render the record drop-down list of already-scheduled records on the page if the drop-down would contain more than 10,000 options. This is to prevent the page from becoming very slow for projects that contain lots of records that have been scheduled already. Users will still be able to view the schedule of individual records on the page though.
60. When viewing an inline PDF (whether via Descriptive Text field, INLINE or INLINE-PREVIEW action tag, or the :inline piping parameter), a PDF resizer option will appear immediately below the embedded PDF, allowing users to adjust the vertical size of the PDF displayed on the page. Clicking the center button on the resizer will set the PDF to be the full height of the browser.
61. Survey completion timestamp fields will no longer return errors when a user attempts to import them via data import. Instead, they will merely return a warning, and their value will be ignored during the import process.
62. Searching has now been added in the Action Tags popup and Smart Variables popup to allow users to find content faster in those popups.
63. When viewing PDF attachments on Descriptive Text fields on a data entry form or survey, in which the PDF is set to be displayed inline, the PDF frame is now adjustable at the bottom so that its vertical size may be modified by the user/participant for better viewing.
64. When a participant attempts to log in to a survey via the Survey Login feature, the attempt is now logged, in which the following things are recorded in the project logging: 1) whether the login attempt was a success or failure, 2) the project fields being utilized in the login attempt, and 3) the context (e.g., the record, survey, and event).

PLEASE CONTACT REDCAP@UCHICAGO.EDU WITH ANY QUESTIONS.