REDCap Release Notes 14.0.12

Complied by CBM

02-20-2024

REDCap will be upgraded on **Thursday, February 22** to **version 14.0**. Below is a list of the highlighted new features followed by a detailed description of the new features, improvements, and changes in REDCap version 14.0.12.

 Here are a few of the new features:

• Background Data Import

• New special functions and piping parameters for date/datetime fields

• Longitudinal functionality for MyCap-enabled projects

• Embedding file attachments in text & emails

• And more!

New Features:

New feature: 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 record's 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 imported

by the import process before it is canceled will not be undone after it is canceled. All changes made by the process up until cancellation are permanent.

New feature: Longitudinal functionality for MyCap-enabled projects

- In previous versions, longitudinal projects could not utilize MyCap (the feature would be disabled automatically). Now with the release of the new MyCap mobile apps on Android and iOS, longitudinal functionality is possible and is supported in the new MyCap mobile app.
- For any projects currently using MyCap, there will be a "transition" button on the MyCap Participants page that will allow the users to transition the project and any existing participants to use the new MyCap mobile app (note: this transition process is completely optional and not required unless wanting to use longitudinal functionality and other new MyCap features). The older MyCap mobile apps will still be available and updated in the Apple App Store and Google Play Store.

New feature: Embedding file attachments in text & emails

- Users may now attach one or more files into the text of a survey invitation, an alert, or a field label on a form/survey, among other things, by clicking the file attachment (paperclip) icon in the rich text editor and then by uploading a file from their local device.
- This feature is available for every rich text editor *with the exception* of non-project pages (e.g., the Email Users page) and any field with the @RICHTEXT action tag.
- Note: All files uploaded via the rich text editor will be represented in the text of the editor as a public file-sharing link, which allows the file to be downloaded in any context (e.g., on surveys, on authenticated REDCap pages, and in public areas like emails and public dashboards). This means that if anyone has possession of this link, they will be able to download the file (at least, until the file has been deleted). All files uploaded via the rich text editor will be automatically stored in a special "Miscellaneous File Attachments" folder in the File Repository where they can be accessed and/or deleted, if necessary. If any such file is deleted from the "Miscellaneous File Attachments" folder in the File Repository, the associated download link for the file will cease to be active and thus will become a dead link wherever it has been used.

New feature: @INLINE-PREVIEW action tag

- 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.

New features: New Multi-Language Management workflow

- Adds new languages to projects, plus many other improvements.
- Improved workflow and user interface for adding new languages to projects.
- Project languages can now "subscribe" to system languages (i.e., any changes/additions to UI (User Interface) translations made in the Control Center will automatically be visible in projects).
- Editing/updating of existing languages has been redesigned and split into separate edit (rename, etc.) and update (sync with system languages or import translations from files) dialogs.
- Added an option to download (empty - i.e. without data) PDFs of all or individual instruments.
- The default setting for the ASI Language Source is not "Language preference field" (instead of "User's or survey respondent's active language").

New action tag: @MC-PARTICIPANT-JOINDATE

- This action tag is a MyCap annotation that can be used with Text fields with date/time validation. When using this action tag on a field, the field will capture the install date/time of the MyCap participant whenever the participant joins a project via the MyCap mobile app.
- NOTE: This is used only for the MyCap mobile app. The field's value is not generated when viewing the data entry form but only when the MyCap app is making a call to REDCap when the participant joins the project.
- Additionally, while this action tag can be added to a new field in already-existing MyCap projects, a field with this action tag will be auto-added to any projects where MyCap is enabled in the project after the fact and for any new projects created using the MyCap project template.

New action tag: @MC-PARTICIPANT-CODE

- This action tag is a MyCap annotation that can be used with Text fields. When using this action tag on a field, the field will capture the MyCap participant's participant code whenever they join a project via the MyCap mobile app.
- NOTE: This is used only for the MyCap mobile app. The field's value is not generated when viewing the data entry form but only when the MyCap app is making a call to REDCap when the participant joins the project.
- Additionally, while this action tag can be added to a new field in already-existing MyCap projects, a field with this action tag will be auto-added to any projects where MyCap is

enabled in the project after the fact and for any new projects created using the MyCap project template.

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 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".

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 tx must be a number.E.g.exponential(1)will return 2.718281828459045.

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 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 page-level caching feature: "Rapid Retrieval"

- REDCap now implements an automatic, transparent form of page-level caching (known as "Rapid Retrieval") to help speed up certain pages that are known to be slow. Currently, Rapid Retrieval operates only on reports and on the Record Status Dashboard page. When a cache is being utilized, a note will appear at the top of the page that says "Page speed was boosted using

- Rapid Retrieval". The Rapid Retrieval cache can be cleared for an entire project by an administrator using the "Clear the Record List Cache" button on the Project Setup->Other Functionality page, in which the button text now says, "Clear all record & page caches."

Improvements:

Improvement: The "Help & FAQ" page has been updated with new content.

Improvement: When using the built-in MyCap feature, users can now explicitly define the title of the project as seen by participants in the MyCap Mobile App. A new button has been added near the top of the "MyCap App Design" to allow users to set the project title that is displayed in the app. If not defined, it will default to using the user-facing title of the REDCap project, which was how it behaved in previous versions of REDCap.

Improvement: When setting up the Survey Queue or an individual Automated Survey Invitation, the survey drop-down for the "When the following survey is completed" setting in the dialog now has a built-in search feature to easily find a specific survey in a long list. Additionally, if the survey title does not match the instrument title, the drop-down list will also

display the user-facing form name for the survey, which should help users find the right survey quicker in certain cases.

Improvement: A new "preformatted code block" button was added to the toolbar of all rich text editors.

Improvement: New option for Form Display Logic: "Hide forms that are disabled". When enabled, all forms that are disabled will also be hidden (not visible) on the Data Collection menu and on the Record Home Page.

Improvement: The text for the setting "Require a 'reason' when making changes to existing records" is now available for translation on the Multi-Language Management page. Improvement/change: If a participant returns to the first page of a multi-page survey (e.g., by clicking the Previous Page button or returning via their Return Code), the survey instructions can be viewed again by clicking the "View survey instructions" link at the top of page 1. In previous versions, the survey instructions could never be viewed again after the survey had been started (i.e., the first page had been submitted).

Improvement: When using the Google/Microsoft Authenticator option for two-factor authentication in REDCap, users will be able to enroll using their Google/Microsoft Authenticator app the very first time they log in to REDCap via 2FA, in which the enrollment QR code will be displayed there the first time they log in via 2FA. This allows institutions to utilize the Google/Microsoft Authenticator option for REDCap without necessarily having to offer the less secure Email option, which is often the fallback/default for when users initially log in via 2FA. In previous REDCap versions, users would have to use a 2FA option other than Google/Microsoft Authenticator the first time they logged in via 2FA. So, this behavior change provides a more secure way to offer 2FA.

Improvement: "Postal Code (UK)" was added as a new field validation.

Improvement: 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.

Improvement: Searching has now been added to the Action Tags popup and Smart Variables popup to allow users to find content faster in those popups.

Improvement: 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.

Improvement: Inline image support (via Descriptive Text field, INLINE or INLINE-PREVIEW action tag, or the ":inline" piping parameter) now works for SVG and WEBP image files.

Improvement: 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.

Improvement: New background process that will help prune abandoned/zombie database processes (e.g., long-running queries that continue running on the database after a user has left the page on which the query is being run) that might decrease the overall performance of the database server. This process is performed every couple minutes by a cron job. This may or may not result in a noticeable database performance improvement.

Improvement: 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 exceedingly long and is thus not displayed in full on the page.

Improvement: 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.

Improvement: 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.

Improvement: The MyCap Help document has been updated, and a new Transition Guide has been added to help inform users regarding the process of transitioning to the new MyCap mobile app from MyCap Classic (the guide is linked in the popup that notifies users about transitioning). Additionally, a new PDF displaying a list of all MyCap app features has been linked in several places where MyCap documentation is located, in which the PDF compares the features of the new MyCap app with the previous MyCap Classic app.

Improvement: 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.

Improvement: 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.

Improvement: When using Multi-Language Management, it is now possible to preset the language of a survey by supplying the URL parameter "__lang", which must be set to a valid (active) language id (and is case-sensitive). Example: https://redcap.vanderbilt.edu/surveys/?s=ABC123&__lang=es. When used, this will override a survey respondent's previous choice (stored in a browser cookie) and the language preference field. The @LANGUAGE-FORCE action tag will still take precedence, though.

Improvement: 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.

Improvement: 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.

Improvement: The rich text editor has been updated to TinyMCE v6.

Improvement: The "Help & FAQ" page has been updated with new content (thanks to the FAQ Committee).

Changes:

Change: 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 can still view the schedule of individual records on the page.

Change/improvement: The favicon was updated to a higher resolution image.

Change/improvement: When using Multi-Language Management and exporting CSV files of the MLM translations, a byte-order mark (BOM) is now added to all CSV files to allow them to be opened successfully in Excel.

Change/improvement: 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.

Change/improvement: 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.

Change/improvement: Slight performance improvement when loading the Logging page in some projects.

Change: 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 are 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.

Change: In Multi-Language Management, the "Default" language term has been renamed to "Base Language" on the MLM setup page and in various documentation for improved clarity regarding the purpose and function of the Base Language in MLM.

Change: When using MyCap in a project, the instructional text in the individual "Invite Participant" popup has been modified slightly to cater better to whether the project has been transitioned to use the new MyCap mobile app or not.

Change/improvement: 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".

Change: When using MyCap, some REDCap server configuration info is now included in the MyCap configuration JSON that gets pulled by the MyCap mobile app when refreshing the MyCap configuration on the participant's mobile device. This server info will be stored on the mobile device and used only for troubleshooting purposes when any issues occur in the mobile app.

Change: When using MyCap in a project, in which the project has not been transitioned to use the new MyCap app (but instead is using the MyCap Classic app), if a user exports the project XML file to create a new project on the same server or on any server on REDCap 13.11.0 , that new project will also be using the MyCap Classic app. In previous versions, the new project would always be using the new MyCap app, which could cause issues in specific situations.

Change: When copying a project on the Copy Project page, if the project being copied contains one or more Dynamic SQL fields, a notice will be displayed near the bottom of that page to inform the user that they may want to consider if the SQL query for the field(s) needs to be modified in order to work correctly in the new project.

Change: In a MyCap-enabled project, the MyCap Invitation Text has been updated for projects that are not yet converted to the new MyCap mobile app. This text change is to reduce confusion regarding the transition from the MyCap Classic app to the new app.

Change: When downloading the Survey Queue settings via CSV file, the CSV filename now contains the project title and timestamp of the download.

Change: 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.

Change: The PID number for a project is now shown on the My Projects page for all user types, whereas in previous versions it was only displayed for admins (users with Control Center access).

Change: The length of time in which the record list cache will be automatically reset has been increased from 1 week to 2 weeks. This was done because the record list cache has seen years of stability and can now be trusted to be accurate for longer periods of time. This change will reduce how often the cache will need to be rebuilt for an active project, which should improve overall system performance.

Change: 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].

Change/improvement: 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.

Change: HTML "style" tags are now allowed in user-defined text, such as field labels, survey instructions, etc.

Change/improvement: On the Calendar page, the year selection drop-down list now extends to 10 years in the future by default, and if the year is changed via the drop-down, the drop-down's option will extend to 10 years in the future of either the current year or the selected year (whichever is largest).

Change: The Internet Explorer web browser is no longer supported in REDCap.

Change: Reworded the "Tip for min/max limits" text in the Online Designer for greater clarity.

Change/improvement: HTML "s" strikethrough tags are now allowed in user-defined text, such as field labels, survey instructions, etc.

Change/Improvement: 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).

Change: 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.

Change/improvement: When searching for action tags in the Action Tag list/dialog, any action tags added to the dialog via an External Module would mistakenly not be included in the search as the user types in the search box. Improvements:

Improvement: New MLM-related Action Tags - If using Multi-Language Management, the LANGUAGE-SET action tag can now be selectively applied to data entry forms via LANGUAGE-SET-FORM) or surveys via LANGUAGE-SET-SURVEY.

Improvement: When using MyCap in a longitudinal project, a more streamlined process is provided for helping users add new active tasks and designate them for specific events in the project. This process is now much less confusing and less disjointed than in previous versions.

Improvement: The @HIDECHOICE action tag now supports piping into its argument - e.g., @HIDECHOICE="[my_checkbox:checked:value]".

Improvement: Improved user interface elements on the Codebook page. A new instrument table lists instrument names and 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.

Improvement: 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.

Improvement/change: For projects with the "Delete a record's logging activity when deleting the record?" setting enabled on the Edit Project Settings page, a request to the API Delete Record method may now include the parameter delete_logging=0 if the user wants to prevent the record's logging activity from being deleted when the record is deleted. If the setting is enabled in the project, then the default value will be '1' for delete_logging (to maintain the

existing behavior in previous versions), and if the project-level setting is not enabled, the default value will be '0'. If the project-level setting has been enabled, this API parameter must be provided with a value of '0' to prevent the record's logging activity from being deleted.

Improvement: The Rapid Retrieval caching feature is now utilized for data exports and for the API methods Export Records and Export Report, whereas in previous versions Rapid Retrieval was only utilized on report pages and the record status dashboard page.