REDCap Flex Upgrade Changelog – February 24, 2025

Version 14.5.43 to 15.0.12 LTS

Highlights of New Features and Improvements:

- **New feature: Descriptive Popups**
  - Summary: Descriptive popups are custom popups of text that become visible after hovering over a specific word or phrase on a data entry form or survey. They have two main components: 1) the link text, which should match a word or phrase used on a form or survey, and 2) the custom text for the popup content. Users may set a descriptive popup to work on all instruments/surveys (default) or on specific ones. Descriptive popups are a great way to convey extra information on a form or survey without the text taking up space on the page. Users may configure their descriptive popups to be activated only on specific instruments. By default, they are enabled on all instruments. Additionally, if the popups are enabled to work on a survey, especially a multi-page survey, users can specify specific page numbers on which the popups will be activated.
  - When copying a project or exporting a project via a Project XML file, there is now an option to copy/export the descriptive popup settings, respectively.
  - Web accessibility: Descriptive popups are WCAG compliant, thus they will work with screen readers.
  - MLM: Both the link text and popup content text of descriptive popups can be translated using Multi-Language Management.
- **New feature: Draft Preview Mode**
  - Draft Preview Mode allows users to preview their data entry forms with their current drafted changes as if they were live. This allows users to fully test the changes they have made in Draft Mode, including all branching logic, calculations, action tags, and embedded fields, before submitting their drafted changes for approval.
  - Additionally, Draft Preview Mode will simulate live data entry on data entry forms, thus allowing users to enter ephemeral data that is stored only in their session; however, no data will actually be saved to the project. Once a user leaves Draft Preview Mode, all ephemeral data that has been entered will vanish.
  - Limitations: While in Draft Preview Mode, the following limitations exist: No new records can be created. No data can be changed or stored in the project (all data changes are transient and are bound to the user's login session). Only changes to already existing forms can be previewed. Delete operations (deleting whole records or deleting data for forms/events) are disabled. Several more limitations exist and are delineated in the Online Designer before enabling Draft Preview Mode.
  - Note: Draft Preview Mode only operates on data entry pages, the Record Status Dashboard, and the Record Home Page. It does not impact any other pages, and it currently does not work on survey pages.
- **New features: Randomization enhancements**
  - A) Multiple randomizations in a project - Users may now define more than one randomization model in a single project. Each randomization model has its own settings (e.g., strata, randomization field, allocation table), and is completely independent of the other models.
  - B) Blinded randomization support - Users may now create a randomization model that is blinded/concealed as a means of concealing the allocation (randomization value) from users to be able to have a truly blinded randomized clinical trial, for example. Users may still choose to create an "open" randomization model (as they always could) by choosing a single-select multiple choice field (e.g., drop-down or radio) to be the randomization field. Alternatively, users may now choose any text field [that does not have field validation] to represent the "randomization number". The randomization number can be uploaded as part of the allocation table, and when a record is then randomized, the field is given the randomization number as its value.
  - C) New Smart Variables
  - - [rand-number] - The randomization number assigned to the record. For randomization in a text field (blinded allocation), this is equivalent to piping the randomization field. For randomization in a categorical field (open allocation), this will be the randomization number associated with the randomization group allocation, if one has been uploaded (this is optional). Use :n to refer to a specific randomization where a project has more than one (default=1).
  - - [rand-time] - The server date and time at which a record was randomized. In a piping context, such as in a field label, survey invitation, or inside the @default action tag, the format of the date and time will be displayed based on the current user's date/time display preferences. If you wish to have it return the raw value, which will instead be in 'YYYY-MM-DD HH:MM:SS' format and would be more appropriate for conditional

logic or calculated fields, simply append :value. Use :n to refer to a specific randomization where a project has more than one (default=1).

- ○ - [rand-utc-time] - The UTC date and time at which a record was randomized. In a piping context, such as in a field label, survey invitation, or inside the @default action tag, the format of the date and time will be displayed based on the current user's date/time display preferences. If you wish to have it return the raw value, which will instead be in 'YYYY-MM-DD HH:MM:SS' format and would be more appropriate for conditional logic or calculated fields, simply append :value. Use :n to refer to a specific randomization where a project has more than one (default=1).

- ○ D) New "Randomize Record" API method - This method allows an API user to randomize a record using the API. The API parameters required are content="record", action="randomize", record=Record name of record to randomize, and randomization_id=The unique id of the randomization (viewable on the Randomization page for users with Design permissions or on the API Playground page), which corresponds to a specific target field and event. This API method returns the value for the target randomization field (plus optionally the alternative target value), or an error message on failure (such as if the record does not exist or if stratification information is missing).

- ○ E) New developer methods

- ○ - REDCap::getNextRandomizationAllocation() - Returns the integer allocation id if an unallocated entry is found, or string '0' if no entry is available (allocation table is exhausted). Returns false on error, e.g. if incorrect stratification information provided.

- ○ - REDCap::updateRandomizationTableEntry() - Updates the target (randomization field or number), alternate target (randomization group or number), or "is_used_by" (e.g., the record to which this allocation/sequence belongs) details for a specified allocation table entry. For example, this method can be utilized to effectively perform the randomization action itself.

- ○ F) New External Module Hook "redcap_module_randomize_record" - Allows custom actions to be performed prior to the randomization of a record - e.g., to override the default randomization allocation. This hook enables implementation of custom randomization allocation routines, e.g. dynamic randomization via minimization. It is expected that only one external module implementing this hook will be enabled in a single project. A warning will be generated if multiple external modules return results from this hook. Location of Execution: The function is executed immediately prior to lookup and assignment of the next available entry in the randomization allocation table. This lookup and allocation is skipped if all redcap_randomize_record hooks return false.

- ○ G) Real-Time Trigger Logic - Randomization can be automated to occur in real time when an instrument is saved and a specified logic expression becomes True, in which all required stratification information must be present. At the bottom of the randomization setup page for a given randomization model, the following options are displayed.

- ○ - Manual only (default) - A user with "Randomize" user permissions must click the "Randomize" button on the data entry form where the randomization field is located.

- ○ - Trigger logic, for users with Randomize permissions only - When the Save button on a specified data entry form is clicked, if the logic expression provided evaluates to True and the current user has "Randomize" user permissions, the record will automatically be randomized (i.e., without clicking a "Randomize" button).

- ○ - Trigger logic, for all users (including survey respondents) - When the Save button on a specified data entry form or survey page is clicked, if the logic expression provided evaluates to True (despite the user's permissions if on a data entry form), the record will automatically be randomized.

- ○ H) New options for REDCap administrators [only] to perform the actions below, which are meant to be used in rare/unexpected situations. These can be found when viewing the allocation table under the Dashboard section of a randomization model. Note: Whenever an administrator uses one of the actions, they must provide a "reason" as text, which gets added to the project Logging.

- ○ - Manually randomize a record - Provide a value for a randomization group or number to manually set the randomization value for a specified record.

- ○ - Remove the randomization for a record (un-randomize it) - If a record has already been randomized, remove that record's randomization allocation so that it will no longer appear randomized and so that another record might possibly get assigned that allocation.

- ○ - Edit an allocation/sequence - Modify the randomization group and/or randomization number value for an unallocated sequence. This is essentially the equivalent of modifying an existing allocation table.

- ○ - Make an allocation/sequence unavailable - Remove an allocation/sequence so that it will not be used in a future randomization. This is essentially the equivalent of removing a row from an existing allocation table.

- ◦ I) Project XML & Copy Project - Randomization model settings have now been added as an optional component to copy when doing a "Copy Project" action or when exporting->creating a project via a Project XML file.
- **New feature: Bulk Record Delete**
  - ◦ Users may use the Bulk Record Delete page to delete multiple records from the project or alternatively to delete data for multiple instruments across multiple records. To perform either of those two actions, a user must have "Delete Records" privileges, and for the partial delete option, a user must additionally have "View & Edit" instrument-level privileges for the instrument that they select.
  - ◦ The Bulk Record Delete page can be accessed from two different locations in a project: 1) On the Other Functionality page, and 2) On the Record Status Dashboard via the new Multi-Record Actions dropdown.
  - ◦ If the project has the GDPR-related feature "Delete a record's logging activity when deleting the record?" enabled in the project, the user will be prompted with a checkbox to additionally delete the record's logged events on the Logging page when deleting entire records.
  - ◦ If the "Require reason for change" option is enabled in the project, users will be prompted to enter a reason that will get logged when performing a partial delete of one or more instruments.
  - ◦ The Bulk Record Delete feature can be disabled for the whole system on the Modules/Services Configuration page in the Control Center, if desired. By default, this feature will be enabled.
  - ◦ Note: If a user is performing a partial delete, the instrument's data cannot be deleted in the following situations: 1) If the form is locked, 2) If no users are allowed to modify survey responses (via the system-level setting) and the data of the selected instrument(s) is a survey response, 3) If the user does not have form-level rights to modify survey responses for the selected instrument(s) and the data of the selected instrument(s) is a completed survey response, or 4) If the selected instrument(s) is a completed e-Consent response and e-Consent responses are not allowed to be edited per the survey's e-Consent settings.
- **Improvements to the Codebook page:**
  - ◦ Form names in the Instruments table are now internal links to the corresponding form in the fields table to allow users to move to that form quickly on the Codebook page.
  - ◦ Forms have a new Edit icon next to the form name leading to the field-edit view of the Online Designer.
  - ◦ The "Return to Codebook" button on the Online Designer now leads back to the form/field (instead of just to the top)
- **Improvement:** REDCap now supports the "address" HTML tag so that it may be utilized in user input (e.g., field labels, survey instructions).

Other changes, fixes, and improvements

The following is the version changelog provided by the REDCap developers, presented as is. Note that not all fixes and features listed apply to UBC's REDCap Flex.

Version 15.0.12

- Bug fix: A fatal PHP error might occur when using REDCap Messenger in specific situations.
- Bug fix: A few references to the old domain "redcap.vanderbilt.edu" still existed in some "User Guides and Wizards" listed on the "Help & FAQ" page. Those have been updated to have the "redcap.vumc.org" domain name.
- Bug fix: If survey invitations are scheduled (manually or via ASI) and then the survey instrument is completely deleted from the project, any scheduled (but unsent) invitations or reminders would mistakenly still get sent to the participant. (Ticket #249340)
- Bug fix: If using the Mandrill third-party email service for outgoing emails, in some situations (e.g., the Mandrill account runs out of tokens), emails would get "queued" in Mandrill and never get sent, but REDCap would count these emails as having been successfully sent. In this case, REDCap will appropriately note the emails as not successfully sent.
- Bug fix: In certain situations when performing a fresh installation of REDCap, the install page might fail with a fatal PHP error. (Ticket #249818)
- Bug fix: In rare situations when viewing the record status dashboard in a project, the page might crash due to a PHP error, especially if the Rapid Retrieval feature is enabled for the system. (Ticket #249892)
- Bug fix: On the "Patient Portal" page of the EHR launch in CDIS, single quotes in project titles were not handled correctly, leading to errors when adding a patient to a project.

- Bug fix: When a project contains Data Access Groups and a user modifies the "Page X of Y" drop-down list on the Record Status Dashboard after "[No Assignment]" has been selected in the DAG drop-down list, the page would reload but mistakenly have the "All" DAG option auto-selected.
- Bug fix: When a user account is deleted from the system via the Browse Users page in the Control Center, in which the user being deleted is a sponsor for one or more users, the deleted user would fail to be removed as a sponsor for the other users. (Ticket #249781)
- Bug fix: When a user attempts to send an announcement or message to a MyCap participant via the MyCap Participant List page, in which the announcement/message fails to send for whatever reason, the user would mistakenly not be notified about the failure, and the announcement/message would be logged in REDCap as if it had sent successfully.
- Bug fix: When an instrument PDF is generated/downloaded or is stored as a PDF Snapshot, if all the fields that follow a section header on the instrument are hidden by branching logic or action tags, in which those fields are the last fields on the instrument but are not the last fields of the whole PDF, the section header would mistakenly be displayed in the PDF when it should instead be hidden/not visible. (Ticket #249551)
- Bug fix: When executing Data Quality rules in multi-arm projects in which fields used in the rule's logic are utilized on some arms but not others, while at the same time one or more of the logic fields are used on repeating events, this could cause the DQ rule to return false discrepancies for records that don't exist in some arms. (Ticket #248394)
- Bug fix: When performing a data import for repeating instruments or repeating events, in which the "redcap_repeat_instance" value being imported begins with the text "new" but is not the exact word "new" (e.g., new-instance), the data would get imported but might mistakenly get orphaned in a way that it is not accessible for editing/deleting in the user interface afterward. The import process will now only allow a positive integer or the exact word "new" to be used as a valid value for "redcap_repeat_instance". (Ticket #250072)
- Bug fix: When the Double Data Entry feature is enabled in a project and a user is merging two records into a new third record on the Data Comparison Tool page, if a Text or Notes field is selected on that page, in which the selected field's value contains an apostrophe, it would cause a JavaScript error that would mistakenly prevent that value from being included as part of the merge process (unbeknownst to the user) when creating the new record.
- Bug fix: When user account expiration emails are being sent out by the system, the outgoing email might mistakenly have the incorrect person/sponsor CC'd in the email in certain circumstances. (Ticket #249492)
- Bug fix: When using Multi-Language Management on an instrument where fields are embedded, fields embedded in a field that is excluded from MLM translation would mistakenly be invisible on the page.
- Bug fix: When using the CDIS Custom Mapping feature, the CSV import process for uploading new custom mappings might not work correctly due to the CSV file not being parsed successfully by CDIS. Additionally, if any import errors occurred during the CSV import process, those errors might mistakenly not be displayed to the user. (Ticket #248646)
- Bug fix: When using the Data Resolution Workflow and a custom Data Quality rule has real-time execution enabled, if the DQ rule is violated by a user via data entry on a form and then the user "verifies" the field's value, the Data Quality rule would mistakenly still show a violation as existing if the form is saved again. This only occurs if the form is a repeating instrument or is on a repeating event. (Ticket #249640)
- Bug fix: When using the Data Resolution Workflow and a custom Data Quality rule has real-time execution enabled, if the rule is violated by a user via data entry on a form and the user opens/closes/responds to a data query or verifies/de-verifies the field's value, the button in the "Data Quality rules were violated" dialog for that DQ rule would mistakenly not get updated with the new number of comments and new icon representing the current state of the data query.

Version 15.0.11

- Bug fix: A race condition exists during the record randomization process in which two records being randomized simultaneously on a data entry form could cause a fatal PHP error to occur or possibly cause other issues if both records currently do not exist yet when the randomization process is performed.
- Bug fix: If a project has only one form and the current record does not exist yet, the project will normally try to bypass the Record Home page and redirect the user directly to the data entry form as a convenience. If Form Display Logic is being utilized and the logic always evaluates to false for new records in this case before they are created, this will cause an infinite redirect loop on the page and prevent users from creating new records using the user interface. (Ticket #249191)
- Bug fix: If a proxy server is utilized for REDCap and is configured on the General Configuration page in the Control Center, the AI features in REDCap would mistakenly not work. Bug emerged in REDCap 15.0.0. (Ticket #249474)

- Bug fix: In certain situations, some REDCap cron jobs might mistakenly not get executed for a very long time compared to when they are expected to run if some other prioritized jobs consistently get run by the REDcap cron for a disproportionate amount of time. The prioritization logic that determines which jobs are run and when they are run has been modified slightly so that REDCap will occasionally prioritize cron jobs that have not been run in a long time to ensure that all jobs get a chance to run closer to their expected interval.
- Bug fix: In specific unknown circumstances, REDCap might mistakenly crash due to a "Detection\MobileDetect" PHP class not being found.
- Bug fix: In very specific cases in multi-arm projects where one arm contains only one event while then other arms do not contain any events, the "Download arms (CSV)" option on the "Define My Events" page would display a confusing error message when clicked, thus preventing the user from downloading the CSV file. (Ticket #248975)
- Bug fix: When a survey has the setting "Show or hide the Submit buttons" set to "Always hide", if any field values change while viewing the survey page, and then the survey page is closed (browser is closed or tab is closed), the "Leave site?" prompt would be displayed. The prompt should not be displayed in that situation since there is no way to submit the survey page. (Ticket #249236)
- Bug fix: When creating new arms in a project via CSV upload on the "Define My Events" page or via the API, it would mistakenly allow users to add arms with an arm number higher than 99, which is supposed to be the maximum possible value. Note: If users have done this previously, there should not be any negative consequences in the project. (Ticket #239179)
- Bug fix: When importing data using the Data Import Tool, in which out-of-range values are being imported for text fields with min/max validation ranges, the orange warning would mistakenly not be displayed on the page for those fields. (Ticket #249303)
- Bug fix: When the Secondary Unique Field is enabled in a project and multiple users or survey participants are submitting the same value for the SUF at nearly the same time, the SUF uniqueness check would fail to catch duplicates because of a lack of server-side checking when a form/survey is submitted. To prevent duplicate values in the future for the SUF in this situation, REDCap now employs post-submission server-side checking, in which it will not save the duplicate value for whoever submits their page last, and additionally, it will display a warning popup letting them know why their value could not be saved and for them to enter a different value for the field. (Ticket #248036, #248104)
- Bug fix: When using Multi-Language Management in a project where alerts are translated via MLM, if the alert is set to send immediately (rather than with a delay), the alert might be sent not with the translated text but instead with the original default language text. (Ticket #249344)
- Bug fix: When using the Background Data Import process, in which the records being imported contain hundreds or thousands of repeating instances within each record, database performance could be impacted due to inefficient query methods during the process of uploading the data file. (Ticket #248023)

Version 15.0.10

- Major security fix: A Stored XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into any user input that is then output on a page in REDCap (e.g., field labels, survey instructions, data displayed on a report), specifically targeting the "href" attribute of a hyperlink. This vulnerability can be exploited by authenticated users and also by survey participants entering data. Bug exists in all REDCap versions.
- Major security fix: An SQL Injection vulnerability was found on the User Rights page, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way when adding new User Roles. This can only be exploited by authenticated users. Bug exists in REDCap 10.3.3 and higher.
- Minor security fix: An Insecure Direct Object References (IDOR) vulnerability was found, in which a malicious user could potentially exploit it by manipulating the URL of the Sponsor Dashboard page in a specially crafted manner. This could allow the attacker to view a sponsor's Sponsor Dashboard page (and view the names and emails of all their sponsees that they sponsor) and could allow the attacker to request actions on behalf of the sponsor, such as requesting that a sponsee's password be reset, that the sponsee be suspended, etc. Administrators should be allowed to view a sponsor's Sponsor Dashboard, but regular users should only be able to view their own Sponsor Dashboard. Note: This vulnerability is only exploitable if the User Sponsor functionality is being utilized in REDCap. (Ticket #249102)
- Major bug fix: When using the SFTP file storage option for any of the three features that stores files onto an external file server (e.g., e-Consent Framework, Record-level Locking Enhancement, and File Upload field enhancement), the process would mistakenly fail due to a fatal PHP error due to an underlying change in a third-party PHP library. Bug emerged in 15.0.8 (Standard) and 15.0.9 (LTS). (Ticket #248948)

- Bug fix: For CDIS, an incorrect CDP Dashboard link was displayed in CDM Projects.
- Bug fix: For CDIS, the Clinical Data Mart fetch process might fail silently due to a PHP warning.
- Bug fix: If a MyCap-enabled PROMIS instrument is part of a Health Measure battery, the instrument was not functioning in a series as repeating for selected events.
- Bug fix: The "Require reversal" setting for the "Spatial Memory" active task for MyCap should not have been displayed on the MyCap task settings page for that specific active task because it was never utilized on the MyCap mobile app side.
- Bug fix: When MLM is active on a form/survey that contains Smart Charts in translatable labels, the Smart Charts would get lost during rendering of the field translations. (Ticket #248576)
- Bug fix: When downloading a PDF of a survey instrument or when REDCap is storing a PDF Snapshot of a survey instrument, certain HTML tags (most notably BR tags) that exist in the survey instruction text might mistakenly get stripped out before being properly processed into line breaks, etc. for the PDF. Bug emerged in REDCap 14.5.0. (Ticket #243240b)
- Bug fix: When exporting an individual instrument's translations on the MLM setup page, the settings from the MLM export dialog were not properly observed. (Ticket #249036)
- Bug fix: When translating text via MLM for section headers and matrix headers, "line breaks" were not properly preserved when MLM is active on a form/survey. (Ticket #249027)
- Various CDIS-related bug fixes.

Version 15.0.8

- Change: Support has been dropped for PHP 7 - The minimum required PHP version is now PHP 8.0.2. All major versions of PHP 8 (i.e., 8.0 through 8.4) are supported.
- Bug fix: A missing LOINC code was added to the CDIS mapping features.
- Bug fix: If survey invitations are scheduled via the Participant List, in which one or more invitation reminders are scheduled to be sent, the reminders might mistakenly not get automatically removed from the Survey Invitation Log after the survey had been completed. This would cause the reminders to be sent to the participant even after they had completed the survey. (Ticket #203090b)
- Bug fix: The column for the "Lock/Unlock Entire Records (record level)" user privilege was mistakenly missing from the user rights/roles table on the User Rights page in a project.
- Bug fix: The drag and drop implementation to move fields in the Online Designer prevented other drag and drop operations on the same page from working.
- Bug fix: The special function isnumber() would mistakenly return an incorrect response for numbers that begin with zero and a decimal (e.g., 0.2) and also returned an incorrect response for integers with leading zeros that being with plus or minus (e.g., +02), which are expected to return false from the function. Bug emerged in REDCap 14.5.37 LTS and 15.0.3 Standard. (Ticket #248368)
- Bug fix: Two-factor verification would mistakenly be successful for users who enter a 6-digit 2FA code with unnecessary leading zeros. (Ticket #248167)
- Bug fix: When using Clinical Data Pull in CDIS, users with proper adjudication rights were unable to see the link to the adjudication table in CDP projects.
- Bug fix: When using the EHR launch process in the Clinical Data Pull feature of CDIS, if a user authenticates for the first time, any initial action they attempt (e.g., adding or removing a project) would fail silently.
- Various CDIS-related bug fixes:
  - The Mapping Helper was mistakenly not logging the MRN alongside the FHIR ID of the patient.
  - SMART on FHIR authorization fix: Resolved an issue where the dropdown menu for selecting a FHIR system was not functioning when multiple FHIR systems were available.
  - EHR Launch bug fix: Fixed a bug where, in certain circumstances, the EHR user was not correctly extracted and displayed in the navbar next to the REDCap user.

Version 15.0.7

- Critical bug fix: When a project is in draft mode and an administrator approves their drafted changes, or if the user clicks Submit Changes for Review in the Online Designer where the changes are approved automatically, the process would mistakenly fail with a fatal PHP error. Bug emerged in the previous release. (Ticket #248136)
- Version 15.0.6(released on 2025-01-26)
- Critical security fix: A Remote Code Execution vulnerability was found in which a malicious user who is logged in could potentially exploit it by manipulating the attributes of fields (e.g., field label) when viewing and saving fields on the Online Designer's field-view page. If successfully exploited, this could allow the attacker to remotely

execute arbitrary code on the REDCap server. Note: Only authenticated users are able to exploit this. This issue was supposedly fixed in REDCap 14.5.38 LTS and 15.0.4 Standard Release, but it was only partially fixed. This vulnerability exists in all versions of REDCap.

- Change: If Easy Upgrade is enabled/available in REDCap, the top of the main Control Center page will now always display a "Check again" link to check for new REDCap versions. This will allow REDCap admins to always be able to check for new REDCap versions that have recently become available.
- Change: The "Choose action for record" menu on the Record Home Page now always displays the "Survey Queue" option for a given record, even if the record's queue currently contains no items. In previous versions, the option would only be displayed if the record's queue contained one or more items. Additionally, the "Survey Queue" option in the drop-down now has a sub-option to allow the user to copy the survey queue link to their clipboard.
- Bug fix: Some text on the Calendar page in a project, specifically the Agenda tab, might mistakenly not be displaying as translated but would be in English if the project is set to use a different language. (Ticket #247305b)
- Bug fix: The "Choose action for record" menu on the Record Home Page would mistakenly always display the "Survey Queue" option and "Survey Invitation Log" option even when surveys are not enabled at the project level.
- Bug fix: When attempting to use the "Break the Glass" page with Epic in CDIS, some overly strict permissions might mistakenly block users from accessing that page.
- Bug fix: When using Multi-Language Management together with MyCap in a project that is in production status, the MyCap project config JSON that is consumed by the MyCap mobile app was mistakenly not getting updated when MLM changes were made on the MLM setup page.

Version 15.0.5

- Critical bug fix: Any survey pages or data entry forms that contain calculated fields would mistakenly crash and never load due to a fatal PHP error.

Version 15.0.4

- Critical security fix: A Local File Inclusion (LFI) vulnerability in CDIS was discovered in which a malicious user could potentially exploit it by manipulating an HTTP request in a specially crafted manner, which could lead to Remote Code Execution. Note: Only authenticated users are able to exploit this, and this vulnerability is only exploitable if CDIS (either CDM or CDP) has been enabled in REDCap. Bug exists in REDCap 14.6.6 and higher, and it does not exist in any LTS version.
- Critical security fix: A Remote Code Execution vulnerability was found in which a malicious user who is logged in could potentially exploit it by manipulating any REDCap logic that is stored in a project (e.g., calculations, branching logic, data quality rule logic, report filter logic). Note: Only authenticated users are able to exploit this. This vulnerability exists in all versions of REDCap.
- Critical security fix: A Remote Code Execution vulnerability was found in which a malicious user who is logged in could potentially exploit it by manipulating the attributes of fields (e.g., field label) when viewing and saving fields on the Online Designer's field-view page. If successfully exploited, this could allow the attacker to remotely execute arbitrary code on the REDCap server. Note: Only authenticated users are able to exploit this. This vulnerability exists in all versions of REDCap.

Version 15.0.3

- Improvement: In a MyCap-enabled project, the "Messages" tab on the "MyCap Participant Management" page now allows users to use a rich text editor when composing messages and announcements sent to MyCap participants. This allows limited text formatting/styling and clickable links to be used in the messages/announcements.
- Improvement: The "Choose action for record" drop-down list on the Record Home Page now lists links to the Logging page, Notification Log, and Survey Invitation Log (if the user has privileges to those pages), in which the current record will already be preselected when navigating to those pages. This improvement serves as the integration of Luke Stevens' "Record Logging Links" External Module. (Ticket #247752b)
- Improvement: When AI Services are enabled, specifically the Writing Tools feature, the magic wand icon for the AI Writing Tools now appears in the rich text editor for Notes fields with the RICHTEXT action tag when on data entry forms. Note: This does not appear for the same fields on survey pages but only for authenticated users on data entry forms.
- Improvement: When the Survey Queue is enabled in a project and a record contains one or more uncompleted items in its queue, an option to open the Survey Queue page for the record will now appear in the "Choose action for record" drop-down list on the Record Home Page. (Ticket #247752)

- Improvements to the Codebook page:
  - Form names in the Instruments table are now internal links to the corresponding form in the fields table to allow users to move to that form quickly on the Codebook page.
  - Forms have a new Edit icon next to the form name leading to the field-edit view of the Online Designer.
  - The "Return to Codebook" button on the Online Designer now leads back to the form/field (instead of just to the top)
- Change/improvement: In a MyCap-enabled project, the Online Designer now displays the version (i.e., "English" or "Spanish") in the instrument label of MTB Active Tasks on the instrument-level view.
- Bug fix: In a MyCap-enabled project, a user clicking the "Messages" link for a participant on the MyCap Participant List page might mistakenly receive a "Missing/Invalid Participant" message. (Ticket #246982)
- Bug fix: In the Online Designer when editing a field that has field validation, in which the field has both min and max validation values, if the user changes the validation type and then puts their cursor into the min validation text box, they may get stuck in a never-ending validation error loop. (Ticket #247376)
- Bug fix: REDCap mistakenly did not allow dropping of text (e.g., from Word) into input elements in the Online Designer.
- Bug fix: The "deceased date/time" value of a patient whose data is pulled via CDIS might mistakenly contain a leading space, thus leading to field validation issues in CDIS projects when the data is being imported from the EHR. (Ticket #247705)
- Bug fix: The special function isnumber() would mistakenly return True when provided with a number with a leading zero (e.g., "02"). It now returns False for any text strings that are numbers with leading zeros.
- Bug fix: When AI Services are enabled, specifically the Report Data Summarization feature, clicking the "Summarize Data" button for a field on the "Stats & Charts" page for Report A ("All Data") would mistakenly not open the dialog due to a JavaScript error. This does not affect any report except Report A.
- Bug fix: When a custom Record Status Dashboard is ordered by a project's record ID field in "Descending order", the dashboard will mistakenly not display the records in the correct order if the first instrument in the project is a repeating instrument or if it exists on a repeating event. (Ticket #247891)
- Bug fix: When using "Copy" option for the instrument-level "Choose action" button in the Online Designer, the instrument would fail to be copied and return a vague error message if a Text field on the instrument contains field validation that does not exist as a valid field validation type on the REDCap server.
- Bug fix: When using any "X & Table-based" authentication method together with Two-Factor Authentication enabled in REDCap, in which the "Enforce two-factor authentication ONLY for Table-based users" setting is set to "Yes" and the "Enable the Google/Microsoft Authenticator app option for 2FA" setting is enabled, the QR code and setup procedure information for setting up the Authenticator app would mistakenly be displayed to non-Table-based users, such as on the user's Profile page and immediately after verifying their primary email address. (Ticket #247942)
- Bug fix: When using the "Custom Surveys for Project Status Transitions" feature together with the Survey Base URL feature, the custom survey that is loaded in an iframe on the page for a Project Status Transition would load but might mistakenly fail to be submitted due to a cross-origin JavaScript security permission error. (Ticket #240644b)
- Bug fix: When using the Azure OpenAI service for Report Data Summarization when the record ID field is not a field in the report, the AI service would mistakenly return an error. Bug emerged in REDCap 15.0.0.
- Bug fix: When using the Local File Storage setting "Organize the stored files into subfolders by project", if a file in a project is shared with someone via Send-It, the file would mistakenly not be downloadable by the recipient. Bug emerged in REDCap 14.9.0. (Ticket #247795)
- Version 15.0.2(released on 2025-01-17)
- Major bug fix: The upgrade process might fail to complete when executing the upgrade SQL script to upgrade to the previous version. (Ticket #247576)
- Version 15.0.1(released on 2025-01-16)
- Major security fix: A Stored XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into any user input that is then output on a page in REDCap (e.g., field labels, survey instructions, data displayed on a report). This vulnerability can be exploited by authenticated users and also by survey participants entering data. Bug exists in all REDCap versions.
- Major security fix: An Insecure Direct Object References (IDOR) vulnerability was found, in which a malicious user could potentially exploit it by manipulating an HTTP request in a specially crafted manner when uploading files for File Upload fields on survey pages and data entry forms. This could allow the attacker to download any file that has been uploaded into the project, potentially containing sensitive/private information. The files that could be downloaded include those uploaded to File Upload fields, to the File Repository, or any other files that

have been generally uploaded into the project in the past. Note: This vulnerability does not allow someone to download files from another project, but only files within the current project, such as files associated with a different record or a different field, event, or instance within the same record.

- Improvement: REDCap now supports the "blockquote" HTML tag so that it may be utilized in user input (e.g., field labels, survey instructions). (Ticket #247361)
- Improvement: The MLM setup page now shows hints that choice labels are fixed for true/false and yes/no fields and thus cannot be translated on a per-field basis. (Ticket #246312)
- Improvement: The user interface of the "Data Dictionary" page in a project has been simplified and improved to help users better understand the general process of editing and uploading a data dictionary. Additionally, buttons have replaced the links for downloading the data dictionary for improved web accessibility and for a better user experience. (Ticket #246206)
- Improvement: When using Multi-Language Management, it is now possible to preset the language for a participant's Survey Queue by supplying the URL parameter "__lang", which must be set to a valid (active) language id (and is case-sensitive). Example: [survey-queue-url]&__lang=es or https://redcap.vanderbilt.edu/surveys/?sq=ABC123&__lang=es. (Ticket #247173)
- Change/improvement: When a user is opening a data query in the Data Resolution Workflow and is assigning the query to a user, if the project contains Data Access Groups and is also using the DAG Switcher, users that can access the current record due to DAG Switching (but are not currently assigned to the record's DAG) will be displayed in the user assignment drop-down for assigning the data query. In previous versions, the user assignment drop-down would only display the users that were currently in the record's DAG and did not respect possible DAG Switcher assignments. (Ticket #246453)
- Change: Slightly modified the styling of the buttons on the randomization model setup page to make the individual steps more distinct.
- Change: When AI data summarization feature for reports is enabled for a project, the "Summarize Data" button displayed on a given report will no longer be visible when there are no fields from the report available to summarize data (i.e., there are no unvalidated Text fields or Notes fields).
- Bug fix: A missing LOINC code was added to the CDIS mapping features.
- Bug fix: For certain changes on the MLM setup page, the "Save Changes" button would not get highlighted (but the changes were still saved when clicking the button).
- Bug fix: If a multiple choice field has one or more non-integer numeric codings (e.g., 0.5), in which the field is used in a calc or CALCTEXT field that utilizes mathematical addition (e.g., [field1]+[field2]), the resulting calculation might not always be mathematically correct in certain situations, such as if some fields used in the calculation have a blank/null value. (Ticket #246718)
- Bug fix: If the AI Services feature is enabled in the Control Center, it would mess up the styling of the Help & FAQ page. Bug emerged in REDCap 15.0.0.
- Bug fix: In certain MLM setup situations, the Survey Queue might fail to translate completely.
- Bug fix: In certain situations, the Submit buttons at the bottom of survey pages might mistakenly not be wide enough. Bug emerged in the previous release.
- Bug fix: REDCap would crash when viewing a randomization allocation table for a stratum with non-numerical codes. (Ticket #247324)
- Bug fix: Some text on the Scheduling and Calendar pages in a project might mistakenly not be displayed as translated but would be in English if the project is set to use a different language. (Ticket #247305)
- Bug fix: When a project is using Clinical Data Pull for CDIS, the non-queueable records list on the CDP Dashboard was not properly created, even when criteria were met.
- Bug fix: When a user has two identical tabs open in their browser on a data entry form where randomization is taking place, if they randomize a record in one tab and then click the Save button in the other tab, the randomization field value would mistakenly get erased. Bug emerged in REDCap 14.7.0. (Ticket #247090)
- Bug fix: When performing a Data Search on the "Add/Edit Records" page, in which the search results include a match on a record's record ID/name while the first instrument in the project is not designated for certain events in a longitudinal project, the search results might mistakenly return a result pointing to an event where the first instrument is not designated, and thus the user clicking the search result would lead to an "Access Denied" error. It will now not output such search results in this specific case. (Ticket #247507, #247508)
- Bug fix: When performing a Data Search on the "Add/Edit Records" page, in which the search results include a match on a record's record ID/name while the user does not have view access to the first instrument in the project (where the record ID field is located), clicking the search result would mistakenly take the user to a form to which they do not have access, which would display an error message and could be confusing. It will now take the user to the Record Home Page for that record in this specific situation. (Ticket #247510)

- Bug fix: When renaming an instrument that is enabled as a survey via the "Choose action" button in the Online Designer, if the user enters a new instrument name that contains an apostrophe, then when REDCap asks if the user wants to also change the survey title to that value, the "Yes" button in the dialog would mistakenly do nothing due to a JavaScript error. (Ticket #247526)
- Bug fix: When using "Large" or "Very large" as the survey text size for a survey that has horizontally-aligned checkboxes, the first checkbox of a field would appear to be slightly cut off on the left side. (Ticket #247466)
- Bug fix: When using CDIS in a project, specifically Clinical Data Pull, the CDP Dashboard page might mistakenly list the records in an incorrect order on the page. (Ticket #247407)
- Bug fix: When using OpenID Connect for authentication, the pre-filling of a user's first/last name and email address in their Profile might mistakenly not occur for certain OIDC setups. (Ticket #246812)
- Bug fix: When using some of the OpenAI services, a fatal PHP error might occur in certain situations where REDCap is not able to communicate with the API service endpoint. (Ticket #247427)
- Version 15.0.0(released on 2025-01-09)
- New features: Implementation of Artificial Intelligence (AI)
  - Background: REDCap can use Artificial Intelligence (AI) to help users perform certain tasks in the application that augment existing REDCap features. These features are implemented by connecting to an AI service that is served over a private endpoint on an virtual network that your institution controls, thereby ensuring the highest level of security and privacy.
  - Enabling AI Services: In order to use the new AI services, a REDCap admin must first enable them on the "Modules & Services Configuration" page in the Control Center. REDCap's AI services currently only use the Microsoft Azure OpenAI deployment of ChatGPT. However, the REDCap development team plans to make more AI deployment options available for use in the future, such as ChatGPT deployments on other cloud hosting services and/or other AI products. You will find instructions here (https://learn.microsoft.com/en-us/azure/ai-services/openai/how-to/create-resource?pivots=web-portal) regarding how to set up and deploy an isolated instance of ChatGPT in Microsoft Azure, or alternatively you may do a web search for "Create and deploy an Azure OpenAI Service resource" to find the instructions.
  - Financial Notice: Since the AI-based features in REDCap utilize a third-party service, these services are not free to use. As such, as the AI services are used by the application, funds will be deducted from your cloud account (i.e., Azure). It is up to your institution to set up your cloud account, get your API keys, manage your funds, etc.
  - Project-level Override: The AI service configuration values (e.g., endpoint URL, API key) may be overridden by project-level values by an admin on the "Edit Project Settings" page for a given project. If you do not want to enable AI services globally but only on certain projects, you may leave the fields in the "Modules & Services Configuration" page blank and then enter values for the AI configuration fields on the "Edit Project Settings" page for a given project. NOTE: By default, the AI services enabled at the system level will be enabled on all projects.
  - Overview of the AI Services: This release comes with three (3) different AI-based services, which are described in detail below. Please note that each service can be enabled/disabled independently.
  - Service 1: "Writing Tools" feature in the rich text editor to enhance text - A magic wand icon will appear in the toolbar of all rich text editors throughout REDCap (with the exception of the RICHTEXT action tag) and will allow users to alter and enhance text in the rich text editor, including changing the length, tone, reading level of the text, etc.
  - Service 2: Summarize free-form text data on reports - A magic wand icon will appear next to free-form text fields displayed on reports in REDCap projects to allow users to have the fields' text values be summarized by the AI service. The user will click a "Summarize" button, after which the service will return a summary of the text and its major concepts based on the action text (i.e. chatp prompt) provided by the user..
  - Service 3: Auto-translate text on the MLM setup page - When using Multi-Language Management (MLM) in a project or in the Control Center, a button will appear on the page that (when clicked) will auto-translate all untranslated text on the page. This will more rapidly allow users to utilize MLM in their projects since they will not need to perform translations of the text manually.
- Improvement: Custom text option for Create New Project page - Admins may now provide custom text to display at the top of the Create New Project page, if desired. This allows for the opportunity to display important information to users before they create (or request creation of) a new project. This custom text can be set in a rich text editor near the bottom of the General Configuration page in the Control Center.
- Improvement: To boost performance, Rapid Retrieval caching was added to the Participant List page, Participant List CSV export, and the API Export Participant List method.

- Change/improvement: The logging mechanism for Break the Glass actions in CDIS projects has been improved. Logs now include detailed information not only for successful operations but also for scenarios where the action cannot be performed, such as when Break the Glass is deemed unnecessary or when an error occurs.
- Change: Added more description to the MyCap Configuration Check page in the Control Center if the "Communication to MyCap Central" test fails.
- Change: In the MyCap settings in the Online Designer, the "Modify Project Title" button was moved down to the "About" section.
- Bug fix: A fatal PHP error might mistakenly occur in a Dynamic Data Pull (DDP) project when saving adjudicated data. (Ticket #246497)
- Bug fix: Fixed a small inconsistency in the text referring to the "Add/Edit Reports" privilege on the User Rights page. (Ticket #246840)
- Bug fix: The submit buttons on survey pages might mistakenly have their text spill out if the button text is long. (Ticket #247033)
- Bug fix: When a user enables Draft Preview Mode in a production project and then views a data entry form for an existing record, some checkboxes on the form might not display the correct value (i.e., checked/unchecked state), especially for checkboxes that exist only in Draft Mode (i.e., are not "live" yet). This was partially fixed in the previous version, but was mistakenly not fixed for data entry forms in a repeating context (repeating instrument or repeating event).
- Bug fix: When using "Large" or "Very large" as the survey text size for a survey that contains hyperlinks in the survey instructions, survey completion text, or in field labels that utilize the rich text editor, the hyperlink's text might mistakenly be locked at a specific font size and thus would look strange adjacent to other text. (Ticket #246917)
- Bug fix: When using Double Data Entry together with Missing Data Codes, in which an MDY- or DMY-formatted date/datetime field has a Missing Data Code value for a record that is about to be merged via the Data Comparison Tool page, the Missing Data Code value would mistakenly be converted into the value "00-00-0000" in the newly created record.
- Bug fix: While generating a new schedule on the Scheduling page in a project, some parts of the table and date/time widgets on the page were mistakenly always displayed in English, even when the user interface had been set to another language. Additionally, the text boxes in the Time column of a projected schedule were too narrow. (Ticket #246833)

Version 14.9.6

- Major security fix: A Reflected XSS (Cross-site Scripting) vulnerability was discovered when uploading files for a File Upload field on a data entry form or survey page, in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into a URL. This can be exploited by anyone who has a link to a survey with a File Upload field (i.e., does not require authentication). Bug exists in all REDCap versions for the past 10 years.

Version 14.9.5

- Major security fix: An SQL Injection vulnerability was found on the User Rights page, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way when adding new User Roles. This can only be exploited by authenticated users. Bug exists in REDCap 10.3.3 and higher.
- Medium security fix: A Reflected XSS (Cross-site Scripting) vulnerability was discovered on the Data Import Tool page in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into a CSV data file being uploaded for the Background Data Import process. This can only be exploited by an authenticated user. Bugs exists in REDCap 13.8.0 and higher.
- Minor security fix: Removed outdated dependencies on the external libraries (jQuery, Bootstrap, Popper) in the "Launch from EHR" process for CDIS projects, specifically due to a vulnerability in Bootstrap 4. These libraries were previously locked to older versions to maintain compatibility with older browsers like IE11, required in specific Epic integration settings. This update eliminates potential security risks associated with the outdated libraries and improves overall maintainability. Note: The vulnerability is only exploitable if the Clinical Data Pull service is enabled in CDIS.
- Improvement/change: The user list table on the Project Home page now displays "EHR Access" in its own column in CDIS projects, separate from the user information. The table style was also slightly tweaked to enhance responsiveness, making the interface cleaner and more user-friendly across devices.
- Improvement: The "Help & FAQ" page has been updated with new content (thanks to the FAQ Committee).

- Change/improvement: All rich text editors now utilize the browser's native spell check functionality by putting a red underline under a misspelled word. (Ticket #246649)
- Change: Text and phrases on certain MyCap-related pages were abstracted to allow for translation.
- Bug fix: If MyCap is disabled at the system level and then a user creates a project via a Project XML file, in which the Project XML is set to have MyCap enabled, the MyCap settings for the project would mistakenly get loaded into the new project.
- Bug fix: In extremely rare situations, the survey page might return the error message "An unknown error has caused the REDCap page to halt", thus possibly preventing the survey response from being saved properly and ending the survey prematurely.
- Bug fix: Several missing LOINC codes were added to the CDIS mapping features.
- Bug fix: When a user enables Draft Preview Mode in a production project and then views a data entry form for an existing record, some checkboxes on the form might not display the correct value (i.e., checked/unchecked state), especially for checkboxes that exist only in Draft Mode (i.e., are not "live" yet).
- Bug fix: When using inline comments inside the "Action Tag/Field Annotation" text, specifically for the IF action tag, the logic might mistakenly not get parsed correctly, thus causing it not to behave as expected. (Ticket #246704)

Version 14.9.4

- Bug fix: Fields might mistakenly fail to be embedded inside a Descriptive field if the Descriptive field already has some input elements contained inside it (in its pre-embedded state). (Ticket #246424)
- Bug fix: For logic-based PDF snapshots stored in the PDF Snapshot Archive in the File Repository, the record link for the snapshot in the snapshot table on the page would mistakenly not navigate the user to the record correctly.
- Bug fix: The "Read introduction to Data Resolution Workflow" link does not work from the "Resolution Metrics" tab of the Data Quality page due to a JavaScript error. (Ticket #246592)
- Bug fix: The Configuration Check page and main Control Center page might mistakenly note that something is wrong with the database structure, specifically the table "redcap_ehr_resource_imports". This was merely a false positive, and it only occurs when running MySQL 8. (Ticket #246426)
- Bug fix: When a user is performing the "Re-evaluate ASI" action in the Online Designer, in which they select the "Test Run" option, the process might mistakenly run many more SQL queries than is intended, which might result in database server performance degradation while the process is running. (Ticket #246170)
- Bug fix: When importing clinical notes for Clinical Data Mart projects via CDIS, the system would fail to identify existing clinical notes, resulting in duplicate entries being stored in CDM projects. REDCap now properly detects and prevents duplicates.
- Bug fix: When using CDIS, the Patient resource would return a blank gender value if a blank gender is provided (i.e., exists in the EHR), instead of defaulting to 'UNK'. This change ensures consistent handling of blank gender values, particularly in "Break the Glass" scenarios.
- Bug fix: When using Custom Event Labels in a longitudinal project, in very specific cases when field variables are prepended with a unique event name in the label, that field's value might mistakenly not get displayed in the Custom Event Label in the table header on the Record Home Page. (Ticket #246409)
- Bug fix: When using REDCap's Two-Factor Authentication feature with the Microsoft/Google Authenticator 2FA option enabled while also using an "X & Table-based" authentication method, the table of user attributes on the Browse Users page in the Control Center would mistakenly display the "Send instructions via email" option for Microsoft/Google Authenticator when an administrator is viewing a non-Table-based user when the "Enforce two-factor authentication ONLY for Table-based users?" 2FA setting is enabled. If 2FA is enabled only for Table-based users, then that option on the Browse Users page should not be displayed when viewing a non-Table-based user's account. Additionally, the "Expiration time for 2-step login code" row should also be hidden in this case. (Ticket #246329)
- Bug fix: When using the "Break the Glass" feature for CDIS, the selection would mistakenly not be cleared after a successful "Break the Glass" action, leaving the "Submit" button enabled. The selection now clears as expected, and the button is properly disabled.

Version 14.9.3

- Major bug fix: When a record in a longitudinal project belongs to a Data Access Group, in which the record has data in only one event, if a user clicks the red X on the Record Home Page to "Delete all data on event" for the one event that contains data, it would mistakenly cause the record to no longer be assigned to the DAG. Additionally, the Logging page would not note the record being unassigned from the DAG. (Ticket #246056)

- Medium security fix: A Reflected XSS (Cross-site Scripting) vulnerability was discovered at the survey end-point in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into a survey URL. This can be exploited by anyone and does not require authentication; however, this exploit is only successful when the outgoing email service being used allows invalid email addresses (e.g., those containing HTML tags or JavaScript) to be used in the recipient email address and returns a status of True that the email sent successfully. Thus, this bug does not occur if using SendGrid, MailGun, or Mandrill third-party email services. Bugs exists in all versions of REDCap.
- Improvement: A new FHIR Statistics page has been added to the Control Center to allow admins to view counts and visualize the EHR data being imported into REDCap via CDIS. There are date-range controls to filter the data by a min/max date, and an export option also exists on the page for exporting the counts. Note: Due to issues with the stats collection not being accurate in previous versions, REDCap will unfortunately be starting with a blank slate stats-wise with this version. For more details, see the FHIR stats-related bug listed below.
- Improvement: When a REDCap administrator is in a project uploading a data dictionary that contains Dynamic SQL fields, the page now displays the following warning to provide more info and transparency when a SQL field is being added or modified: "Allowable warnings found in your Data Dictionary: An 'sql' field is being modified or added in this project. Please confirm that this is acceptable." (Ticket #246357)
- Improvement: When using MyCap together with MLM, the MyCap language codes are now more flexible when adding a language on the MLM setup page. For example, if the language code is "en", "en-US", or "en-UK" on the MLM page, the MyCap mobile app will recognize any of those generally as "English".
- Bug fix: If a multi-page survey has the "Save & Return Later" option enabled and has the "Allow respondents to return without needing a return code" option enabled, if data is entered on that instrument via data entry form (but not via survey) and then the survey is opened, the survey page might mistakenly open on a later page rather than on the first page, as expected. (Ticket #245967)
- Bug fix: If a survey has invitations that have been scheduled or sent, and that survey instrument is later deleted (i.e., the instrument, not the survey settings), those invitations would still appear in the Survey Invitation Log. (Ticket #246034)
- Bug fix: In a MyCap-enabled project that also uses MLM, the base language in MLM would be included in the list of languages in MyCap even if MyCap is not utilized in MLM.
- Bug fix: The "Break the Glass" feature for CDIS when pulling data from Epic into REDCap was no longer working due to changes on the Epic side. The issue has been fixed to allow CDIS users to be able to perform "Break the Glass" operations on multiple records again in the REDCap interface.
- Bug fix: The FHIR statistics collection process for CDIS (i.e., counting the number of values and types of data imported from the EHR via Clinical Data Mart and Clinical Data Pull) was mistakenly storing inaccurate counts for a long time. Much of the stats of data being imported from the EHR was not stored due to a bug. In response to this issue, the old stats data will have to be abandoned but will remain in the REDCap backend database in the table "redcap_ehr_import_counts" for legacy purposes, and that table will no longer be used by the application. As of this version, REDCap has two new database tables "redcap_ehr_resource_imports" and "redcap_ehr_resource_import_details" to collect accurate CDIS stats going forward. The new tables and stats page enhance monitoring, enable improved reporting, and ensure accurate categorization of imported resources in REDCap.
- Bug fix: When a PDF Snapshot is being triggered using a data import or if a PDF is being generated via the REDCap::getPDF() method in an External Module, it would mistakenly output the error message "PDF cannot be output because some content has already been output to buffer" onto the page if some of the webpage had already been rendered. (Ticket #246037)
- Bug fix: When a user is assigning another user to a data query via email for the Data Resolution Workflow, the recipient's first and last name would mistakenly be used as the email sender's Display Name in the email. (Ticket #245946)
- Bug fix: When saving API secrets/keys on various configuration-related Control Center pages, the values of the secrets/keys would mistakenly get logged in the "redcap_log_event" database table. These values are already being encrypted when added to the "redcap_config" table, and as such, they should not be stored in plain text in the internal REDCap logging either. Thus, going forward, any such values will be stored with the value "[REDACTED]" in the logging table rather than as their literal value. (Ticket #245886)
- Bug fix: When using the Survey Login feature in a project, if a survey participant leaves all survey login fields empty and they try to log in by submitting blank values, the survey login would mistakenly be successful, regardless of the number of login fields and the minimum number of fields above that are required for login. (Ticket #246295)

Version 14.9.2

- Improvement: Allow for multiple IdPs for Shibboleth authentication - This allows multiple Shibboleth Login Options to be configured on the Security & Authentication page in the Control Center when using Shibboleth authentication. Previously, this was only possible when using Shibboleth+Table-based authentication. If no Login Option is defined, then authentication functions as normal for Shibboleth. However, if at least one Login Option is defined, then authentication functions much more like Shibboleth+Table-based authentication. Specifically, users will be presented with a login screen identical with the Shibboleth+Table screen except that there is no option for local REDCap login.
- Improvement: Public project dashboard links can now be turned into QR codes. If a public link is created for a project dashboard (including custom/short links), a button next to the public URL on the Edit Project Dashboard view will appear that (when clicked) will display the QR code representing the dashboard link. The QR code image can also be downloaded in SVG format or copied to the user's clipboard.
- Major bug fix: Reverted the cookie-related security improvement in REDCap 14.9.0 so that the SameSite attribute for cookies will now default to the value "Lax" again as it did in pre-14.9.0 versions of REDCap. The change of the cookie SameSite attribute in REDCap 14.9.0 broke authentication for some folks using specific configurations of OpenID Connect and Entra ID authentication. (Ticket #245768)
- Change/improvement: The "View modules available in the REDCap Repo" button in the External Modules Module Manager in the Control Center now opens the REDCap Repo website in a new tab, whereas in previous versions it opened in the same tab. (Ticket #245904)
- Change/improvement: When using MyCap in a project, a new UI improvement has been made for making the 'enable/disable for event' buttons more noticeable on the MyCap Task setup page for longitudinal projects.
- Bug fix: In the "Modify the MyCap task settings" section in the Online Designer, some of the settings were mistakenly not translatable in a language INI file.
- Bug fix: On the CDP Mapping page for CDIS, any HTML existing inside the field label of fields being mapped would mistakenly not get stripped out, thus possibly causing readability issues and other issues on that page.
- Bug fix: The C# code generated by the API Playground had some errors. (Ticket #241561)
- Bug fix: The MyCap API call "getStudyImages" would mistakenly fail due to a PHP fatal error. Bug emerged in REDCap 14.9.0.
- Bug fix: The Randomization Dashboard display would appear to be missing a column in one of the table rows if the project has a single stratification factor with a level value of 0. (Ticket #245697)
- Bug fix: The link text for a Descriptive Popup was mistakenly case-sensitive when it should instead match text on the page in a case-insensitive manner. Bug emerged in REDCap 14.8.1.
- Bug fix: When an admin clicks the "Auto-fill form/survey" link on a form or survey, and specific number-validated fields (e.g., number_2dp_comma_decimal) have a min or max range validation, this would result in an out-of-range validation error on the page. (Ticket #226377b)
- Bug fix: When creating an instrument via an Instrument Zip file in the Online Designer for a MyCap Task, the file upload process would fail, and the error message popup would display blank text as a result.
- Bug fix: When modifying the label of a field in a matrix while in Draft Mode in production status, in which the field contains data for one or more records, a red warning saying "*Possible data loss if a matrix field's label changes" should be displayed on the Project Modifications page; however, that warning was mistakenly not being displayed in that situation. Bug emerged in REDCap 14.5.0. (Ticket #245793)
- Bug fix: When trying to click the "Delete" or "View Summary" action for a Descriptive Popup when using PHP 7, the action might fail due to a PHP error, thus preventing the user from performing the actions. Bug emerged in REDCap 14.8.0.
- Bug fix: When using SendGrid as the outgoing email provider, if the system-level setting "Utilize the Display Name in all outgoing emails?" is turned off, the Reply-To Display Name might mistakenly still get added to outgoing emails. (Ticket #245904)
- Bug fix: When using the DAG Switcher in a project, and the current user clicks the Switch button to open the DAG Switcher dialog, the drop-down list of DAGs in the dialog would mistakenly not look completely like a drop-down element, thus potentially causing confusion. (Ticket #245627)
- Bug fix: When using the Local File Storage setting "Organize the stored files into subfolders by project", if an internal REDCap process is copying a file inside a project, the file might mistakenly not get copied successfully. Bug emerged in REDCap 14.9.0.
- Bug fix: When using the NONEOFTHEABOVE action tag on a field that contains a Descriptive Popup, the popup text might mistakenly be repeated many times over inside the popup. (Ticket #245577)
- Bug fix: When using the Smart Variables [rand-time] and [rand-utc-time] while using Randomization, they would mistakenly always return a value in Y-M-D date format when being piped without ":value" appended to them.

Instead, by default they should return a value formatted using the user's desired date format as specified on their Profile page. Bug emerged in REDCap 14.7.0.
- Bug fix: When using the URL of a website (e.g., public survey link) as the Embed Media URL for a Descriptive field, the embedded website would mistakenly not display properly when viewing the survey page or data entry form on an iOS device. (Ticket #245700)

Version 14.9.1

- Critical bug fix: Under specific circumstances when using PHP 8, data entry forms and survey pages might mistakenly always crash with a fatal PHP error, thus making data collection impossible. Bug emerged in REDCap 14.9.0 Standard. (Ticket #245574)

Version 14.9.0

- Medium security fix: A Stored XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into the record name of a record being imported via the Data Import Tool or API, after which the exploit could be activated in a specific place in the Online Designer. This can only be exploited by authenticated users. Bugs exists in all versions of REDCap in the past 8 years.
- Minor security fix: If REDCap Messenger is enabled, a malicious user could impersonate another user in the system specifically when uploading a file into a Messenger conversation by manipulating an HTTP request in a specially-crafted way. Note: This would not give the user being impersonated access to a Messenger conversation to which they do not have access to, but it would make it appear as if the other user uploaded the file to the conversation. This can only be exploited by authenticated users. Bugs exists in all versions of REDCap in the past 8 years.
- New feature: Organize stored files into subfolders by project (for "Local" storage only)
    - This is an optional feature that allows files for a given project to be stored in a subdirectory named "pidXXXX", in which XXXX is the PID of the project, rather than storing the files associated with that project in the main local storage directory on the web server. This feature can aid in the organization of files if IT/server admins are not happy with there being thousands or millions of files stored in the main storage directory.
    - Once enabled, this setting will be applied to new projects that are created after the fact. This setting will not apply to any existing projects that were created before this setting was enabled.
    - This feature can be enabled near the top of the File Upload Settings page in the Control Center. When upgrading, this setting will be disabled by default, although it will be enabled by default when performing a fresh install of REDCap.
    - This feature is only applicable for REDCap installations that are using "Local" file storage or "Google Cloud Storage (for Google App Engine hosting only)".
    - When enabled, if REDCap is unable (due to a directory permissions issue, etc.) to create a project-level subfolder when a new project is created, it will instead default to storing all project files in the main Local File Storage directory (specified above) for that project.
- Improvement/change: Added 8 new MTB measures for use in MyCap-enabled projects: Spanish versions of Arranging Pictures, Arrows, FNAME Learning, FNAME Test, Number Match, Sequences, Shape-Color Sorting, Word Meaning Form 1.
- Improvement: The PDF Snapshot Archive page in the File Repository now contains a new button to allow users to download the PDF Archive's file list as a CSV file. (Ticket #245337)
- Improvement: When a project is created from a Project XML file, additional info about the file (source system REDCap version and the XML file's creation date) is displayed on the page, or a warning message is displayed if the XML file appears not to be a proper REDCap Project XML file. (Ticket #245469)
- Minor security improvement: The SameSite attribute for cookies utilized by REDCap now defaults to the value "Strict", which provides more security by preventing cookie information leakage to first-party or same-site context. In previous versions, the default value for the SameSite attribute was "Lax".
- Major bug fix: If a project has randomization enabled, in which the randomization field itself has branching logic, it is possible that the randomization field could mistakenly be hidden by branching logic even after the record has been randomized (in pre-14.7.0 versions, this could not happen), thus causing the randomization field's value to be erased if the instrument is saved afterward. Bug emerged in REDCap 14.7.0 Standard. (Ticket #243375)

- Major bug fix: When attempting to perform a traditional installation of REDCap on a PHP 8 web server, the install page would crash with a fatal PHP error, thus preventing the admin from completing the installation process successfully. Bug emerged in REDCap 14.8.0 Standard. (Ticket #244721, #245265, #245371)
- Change: A cookie policy was added that specifies the details of how cookies are utilized by a person's web browser when using REDCap. A link to the policy exists at the bottom of every webpage in REDCap.
- Change: When an admin clicks the "Compose confirmation email" button to send an email to the user via the Project Modifications Review page for Draft Mode, the logged event description (i.e., "Send email to user from admin") now includes the recipient's email address so that their email appears in the project logging to provide more context.
- Various changes for the External Module Framework, including 1) Relaxed tag vs. release zip comparison during security scans, 2) EM Logs table within the project context will now properly maintain PID context (this prevents it from navigating away to the Control Center when trying to use search parameters), 3) Added 'Record' and 'UserName' columns to the report table of EM logs, 4) Included the framework's twig dependency when checking for composer conflicts, and 5) Misc. minor changes.
- Bug fix: A missing LOINC code was added to the CDIS mapping features.
- Bug fix: An outdated version of jQuery was mistakenly included in REDCap as part of a third-party library. That outdated version has been removed since it did not serve a functional role in the library. (Ticket #245523)
- Bug fix: If a Text field or Dropdown field is embedded on an instrument but is not using the ":icons" notation (e.g., {myfield:icons}), then if Missing Data Codes are being used in the project and the field's current saved value is a MDC, there would be no way for a user to clear out the MDC and thus change the field's value. In this situation, the M icon will now be displayed next to the field to allow users to unset the MDC value. (Ticket #245398)
- Bug fix: If a project contains surveys, the "Filter by user name" drop-down list on the Logging page would mistakenly not display the "[survey respondent]" option. That option will now be displayed if surveys are enabled in the project. Bug emerged in REDCap 14.8.1 Standard. (Ticket #245290)
- Bug fix: When a user attempts to resize the Choices textbox (for a multiple choice field) inside the Edit Field dialog in the Online Designer, the elements below the textbox would not move in response to the resizing, thus allowing the textbox to be stretched and mistakenly appear underneath the other elements. (Ticket #245180)
- Bug fix: When an admin clicks the "Auto-fill form/survey" link on a form or survey, and a DMY or MDY formatted date field has the literal value "today" as the min or max range validation, this would result in an out-of-range validation error on the page. (Ticket #226377)
- Bug fix: When downloading the Notification Log on the Alerts & Notifications page, the resulting CSV file's filename would mistakenly end with ".csv.csv". (Ticket #245440)
- Bug fix: When exporting data to SPSS, the SPSS Pathway Mapper batch file would mistakenly remove the BOM (byte order mark) from the SPSS file, leading to UTF-8 characters in the SPSS file getting mangled.
- Bug fix: When modifying a matrix of fields in the Online Designer, in which the variable names of some fields are changed, the fields would mistakenly not be saved correctly, and attributes of some fields in the matrix might get merged into other fields in the matrix. (Ticket #244773)
- Bug fix: When performing a data import that contains values for the Secondary Unique Field in the project, in which the SUF's value happens to be a Missing Data Code and another record already has the same Missing Data Code saved for the SUF in the other record, the import process would stop with an error message saying the value of the field duplicates the value from another record. The SUF uniqueness check should not be performed when importing a Missing Data Code. (Ticket #245182)
- Bug fix: When the "Require a reason when making changes to existing records" feature is enabled in a project and a user goes to import data using the Data Import Tool, the user is given a warning message if a "reason" is not provided for all existing records being modified by the import, but it would mistakenly allow the import to take place without a reason provided, which should not be allowed. (Ticket #245514)
- Bug fix: When uploading a consent form file for a survey on the e-Consent Framework page, in which the file uploaded is not a PDF file, it would mistakenly add a placeholder in the consent file version table (but with a blank value for the PDF file), which would prevent users thereafter from uploading the correct file with the same consent form version number (because the version number is already used by the previous mistaken upload). (Ticket #245561)
- Bug fix: When using Twilio/Mosio telephony services in a project that is utilizing the setting to use a mappable multiple choice field for the Delivery Preference, if a new record is created via a data import or via the API, in which the mappable field value is set during the import process, the new record's delivery preference would mistakenly be set to the project default delivery preference (or instead as "Email") rather than to the correct delivery preference value for the record. (Ticket #245186)

- Bug fix: When viewing the field-view in the Online Designer, in which a date/datetime field is embedded and also has the CALCDATE action tag, the green "Field is embedded elsewhere on page" button would mistakenly be hidden for that field. (Ticket #245243)
- Bug fixes for Clinical Data Interoperability Services (CDIS): 1) Resolved incorrect display of mapped status for "Device - Implants" resources in the CDIS Mapping Helper, and 2) Fixed saving functionality for "Device - Implants" resources in the matching form for CDM projects.

Version 14.8.3

- Minor security fix: A vulnerability was discovered in REDCap Messenger in which a malicious user could potentially exploit it by manipulating an HTTP request in a specially-crafted way that would potentially allow them to enumerate a list of all usernames in the whole system, including users' first and last name. This can only be exploited by authenticated users. Bugs exists in all versions of REDCap 7.4.0 and later.
- Improvement: When creating an alert in a longitudinal project, users can now select an email field from the current event where the alert is triggered to be used as the "Email To" setting for the alert. This allows for flexibility when using different email addresses on each event in the project. In previous versions, email fields in specific events only could be selected.
- Minor security improvement: The HTTP header "Referrer-Policy: strict-origin-when-cross-origin" was added to prevent the leakage of referrer information when navigating to external websites from REDCap.
- Change/improvement: Allow multiple PHP errors to be logged in the "redcap_error_log" database table for a single request (i.e., single log_view_id).
- Change: REDCap is now officially compatible with PHP 8.4. Note: It was noted in a previous release that REDCap 14.7.4 and higher was compatible with PHP 8.4, but that was incorrect. Only REDCap 14.8.3 and higher are compatible with PHP 8.4. Additionally, the current recommended PHP versions for REDCap are PHP 8.1, 8.2, 8.3, and 8.4. Note: REDCap is currently compatible with PHP version 7.3.0 and all later versions (including PHP 8.4.X).
- Bug fix: If a survey ends via a Stop Action and the Alternate Survey Completion Text has been left blank, it would display no text at all at the end of the survey when it should instead default to displaying the regular Survey Completion Text. (Ticket #245008)
- Bug fix: If users are using Firefox ESR (Extended Support Release) 115 as their browser, the Font Awesome icons (i.e., most of the icons used in REDCap) would mistakenly be invisible on all REDCap pages due to an incompatibility issue with Font Awesome 6.7.0 (that library was upgraded to 6.7.0 in the previous REDCap version). The Font Awesome library in REDCap has been upgraded to 6.7.1 to resolve this issue for users using Firefox ESR 115. Note: This should not affect users using the latest Firefox version in its default release channel, and this also does not affect users using other browsers. Bug emerged in the previous REDCap version.
- Bug fix: In very specific situations where a date/datetime field has the READONLY action tag, the calendar datepicker icon next to the field would mistakenly still be displayed, thus allowing users to inadvertently modify the field value using the datepicker widget. (Ticket #244986)
- Bug fix: The Data Search feature on the "Add/Edit Records" page might mistakenly keep saying "Searching..." even when nothing has been returned if certain keys on the keyboard are clicked, such as Enter, when typing the search term. (Ticket #54818b)
- Bug fix: The piping documentation mistakenly did not specify that piping essentially bypasses a user's Data Viewing Rights, so even if a user has 'No Access' Data Viewing Rights for the instrument of a piped field, any user will be able to view the data of the piped field regardless of where the field is being piped. More information has now been added to the piping documentation to clarify this missing piece of information. (Ticket #244827)
- Bug fix: When MLM is active, the redirection of completed surveys via the survey termination option "Redirect to a URL" would not work as expected. (Ticket #244741)
- Bug fix: When uploading a file into a REDCap Messenger conversation while inside a REDCap project, the Upload File dialog would mistakenly be covered by the left-hand project menu.

Version 14.8.2

- Major bug fix: The Multi-Language Management page in the Control Center would mistakenly fail to load due to a JavaScript error. Bug emerged in REDCap 14.8.0 (Standard).
- Version 14.8.1(released on 2024-11-20)
- Major security fix: A Stored XSS (Cross-site Scripting) vulnerability was discovered in REDCap Messenger and in the Data Quality module in which a malicious user could potentially exploit it by inserting custom HTML and

JavaScript in a specially crafted way. These can only be exploited by authenticated users. Bugs exists in all versions of REDCap 7.4.0 and later.
- Major security fix: An SQL Injection vulnerability was found on a MyCap-related page, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way. This can only be exploited by authenticated users. Bugs exists in all versions of REDCap 13.0.0 and later.
- Minor security fix: A security vulnerability was discovered in the Moment.js library that is utilized by REDCap. That library has been removed from the REDCap code to remediate this issue.
- Minor security fix: Due to a ReDoS (Regular expression Denial of Service) vulnerability discovered in the Vue third-party library that is bundled in REDCap, the Vue library utilized specifically on the CDP Mapping page has been upgraded to a newer version that does not contain the vulnerability.
- Minor security improvement: A couple different project pages might mistakenly allow knowledgeable malicious users to email any recipient as many times as they wish (i.e., spam any email address), although the email itself would still have to come "From" one of the user's email addresses as listed in their REDCap user profile. Exploiting this feature is no longer possible.
- Change/improvement: When using the Data Resolution Workflow, the "assign user" drop-down list in the DRW dialog is now displayed as an auto-complete drop-down to help users more easily select a user from the list in projects that have a large number of users.
- Change: Performance improvements on the MLM setup page, which should load faster than in previous versions.
- Bug fix: If a Descriptive Popup's link text is an exact match for the choice label in a checkbox field, the choice label text would mistakenly be shifted to the left, in which the checkbox itself might not be visible. (Ticket #244425)
- Bug fix: If a Descriptive Popup's link text matches a choice label in a drop-down field, the popup's content would mistakenly be inserted into the choice label. Descriptive Popups should not work for drop-down field choices due to general HTML limitations. (Ticket #244425)
- Bug fix: If a Descriptive Popup's link text matches a choice label in a radio field, the popup's content (when displayed) might mistakenly be indented and not fit well inside the popup. (Ticket #244425)
- Bug fix: If one or more fields are piped into the survey instructions of a survey, in which the fields being piped are located on the first page of the survey, the real-time piping action might not occur when entering data into those fields on the first survey page unless those same fields happen to be piped elsewhere on the page.
- Bug fix: If the MyCap External Module had previously been enabled at the system level, and a user enables Draft Preview Mode in a production project, the Record Status Dashboard might mistakenly fail to load due to a fatal PHP error for PHP 8. (Ticket #244458)
- Bug fix: In a multi-arm project that utilizes the Survey Queue or certain [survey-X] Smart Variables, in which individual records will exist on multiple arms at the same time, if a record exists in one arm and then a participant uses the Survey Queue to navigate to a survey in another arm where the record does not yet exist, the participant would mistakenly be redirected to the survey page that asks them to enter a survey access code. And if using a [survey-X] Smart Variable that refers to a survey on another arm, it would mistakenly return a blank value.
- Bug fix: In the External Modules Framework, the method $module->getFirstEventId() would mistakenly not return the true first Event ID as listed on the My Events page in longitudinal projects.
- Bug fix: Several missing LOINC codes were added to the CDIS mapping features.
- Bug fix: The API Playground page might load unusually slowly for older projects or busy projects (i.e., with lots of logged events).
- Bug fix: When a matrix of fields contains no choices, the Online Designer field-view page, data entry form, and survey page containing that matrix might mistakenly crash due to a fatal PHP error when using PHP 8. (Ticket #244669)
- Bug fix: When exporting a report in "labels" format for a report that is sorted by a multiple choice field that has integers for every choice value, the resulting exported data would mistakenly not be sorted according to the choice labels but would often revert to being sorted by the record ID field instead. (Ticket #244525)
- Bug fix: When using Multi-Language Management and translating field labels, in certain cases some text in the field label might not align horizontally with other text that should be displayed on the same line.
- Bug fix: When using a CDIS service, the Date of Death value of a patient was mistakenly displayed in Zulu (UTC) time instead of the expected local formatted time. The date is now converted to local time and formatted to YYYY-MM-DD HH:MM format for consistency.

Version 14.8.0

- New feature: Descriptive Popups

- This feature represents the integration of Mark McEver's "Inline Descriptive Popup" External Module. Note: Upgrading to this version will not disable the "Inline Descriptive Popup" EM nor will it migrate any settings from the EM if the EM is being used in a project.
  - Summary: Descriptive popups are custom popups of text that become visible after hovering over a specific word or phrase on a data entry form or survey. They have two main components: 1) the link text, which should match a word or phrase used on a form or survey, and 2) the custom text for the popup content. Users may set a descriptive popup to work on all instruments/surveys (default) or on specific ones. Descriptive popups are a great way to convey extra information on a form or survey without the text taking up space on the page. Users may configure their descriptive popups to be activated only on specific instruments. By default, they are enabled on all instruments. Additionally, if the popups are enabled to work on a survey, especially a multi-page survey, users can specify specific page numbers on which the popups will be activated.
  - When copying a project or exporting a project via a Project XML file, there is now an option to copy/export the descriptive popup settings, respectively.
  - Web accessibility: Descriptive popups are WCAG compliant, thus they will work with screen readers.
  - MLM: Both the link text and popup content text of descriptive popups can be translated using Multi-Language Management.
- New feature: Draft Preview Mode
  - Draft Preview Mode allows users to preview their data entry forms with their current drafted changes as if they were live. This allows users to fully test the changes they have made in Draft Mode, including all branching logic, calculations, action tags, and embedded fields, before submitting their drafted changes for approval.
  - Additionally, Draft Preview Mode will simulate live data entry on data entry forms, thus allowing users to enter ephemeral data that is stored only in their session; however, no data will actually be saved to the project. Once a user leaves Draft Preview Mode, all ephemeral data that has been entered will vanish.
  - Limitations: While in Draft Preview Mode, the following limitations exist: No new records can be created. No data can be changed or stored in the project (all data changes are transient and are bound to the user's login session). Only changes to already existing forms can be previewed. Delete operations (deleting whole records or deleting data for forms/events) are disabled. Several more limitations exist and are delineated in the Online Designer before enabling Draft Preview Mode.
  - Note: Draft Preview Mode only operates on data entry pages, the Record Status Dashboard, and the Record Home Page. It does not impact any other pages, and it currently does not work on survey pages.
- Improvement: REDCap now supports the "address" HTML tag so that it may be utilized in user input (e.g., field labels, survey instructions). (Ticket #244390)
- Change: In a MyCap-enabled project, REDCap now prevents the user from accessing the "View participant QR code" and "Invite Template" popups until the first MyCap app version has been published for the project.
- Change: In a MyCap-enabled project, the "Messages" feature is now disabled in the MyCap participants list for participants that have not yet joined the project using the MyCap mobile app (i.e., their install date is blank).
- Change: The "Learn Advanced Design Features" link on the left-hand project menu is now only displayed to users with Project Setup & Design privileges. (Ticket #244150)
- Bug fix: If the Survey Base URL is being used together with Clickjacking Prevention in the REDCap installation, "Custom Surveys for Project Status Transitions" survey pages would initially load in a user's browser, but after clicking a submit button on the survey, the page would be blocked and would not load any more pages. Note: This was supposedly fixed in REDCap 14.5.16 (LTS) and 14.6.10 (Standard), but it was only partially fixed. (Ticket #240644b)
- Bug fix: If using the AWS CloudFormation deployment of REDCap, the REDCap upgrade process might mistakenly fail or have issues due to the "upgrade-aws-eb.sh" file inside the REDCap source code not being up-to-date with the same file stored in the GitHub repo for REDCap's AWS CloudFormation (https://github.com/vanderbilt-redcap/redcap-aws-cloudformation/). The file inside REDCap has now been updated to match the GitHub file.
- Bug fix: In a MyCap-enabled project, REDCap was mistakenly listing DAG-specific announcements in a participant's message thread even if they are not in the DAG.
- Bug fix: In a MyCap-enabled project, fields with the action tag MC-PARTICIPANT-CODE would mistakenly not get updated with the participant code value for records created via the API.
- Bug fix: The System Statistics might mistakenly fail to load due to a fatal PHP error in PHP 8. In PHP 7, the Randomization project count on the System Statistics page would instead be a blank value instead of a number. Bug emerged in REDCap 14.7.4.
- Bug fix: When downloading a PDF containing saved data, in which the PDF contains data for repeating instruments and/or repeating events, the repeating instances might be mistakenly displayed out of order in the PDF (with the instances of different repeating instruments being ordered by instance number instead of being ordered by

instrument then instance number). Additionally, some of the repeating instruments might be duplicated as empty forms (as if they have no data) on certain pages in the PDF. (Ticket #244080)

- Bug fix: When using field embedding on a Descriptive field that has an "Embed media" URL that is set to be displayed "Inline", the resulting "View media" button and/or field label would mistakenly not appear where the field is supposed to be embedded on a survey page or data entry form. (Ticket #243847)
- Bug fix: When using the "Erase all data" option on the Other Functionality page or when moving a project to production while erasing all records, any PDF Snapshots that are stored in the "PDF Snapshot Archive" in the File Repository would mistakenly not be deleted during this process. (Ticket #244073)
- Bug fix: When using the [stats-table] Smart Variable with one or more unique event names appended to it (in order to limit the table data to specific events), the resulting stats table would mistakenly always display counts from all events for the given field instead of the specified events. (Ticket #244162)
- Version 14.7.5(released on 2024-11-12)
- Major bug fix: In several places in a project where survey links are generated, such as using the Smart Variable [survey-link] or the EM developer method REDCap::surveyLink(), those might return a blank value instead of a real URL. Additionally, if a survey has the "Allow participants to download a PDF of their responses at end of survey?" option set to "Yes" on the Survey Settings page, participants would get a 404 error in their browser when clicking the PDF Download button after completing the survey, thus preventing them from downloading the survey. Bug emerged in the previous version. (Ticket #244103, 244176)

Version 14.7.4

- Minor security fix: A security vulnerability was discovered in the Twig library that is utilized by the External Module Framework. Twig has been upgraded to version 3.11.2 in the REDCap code to remediate this issue.
- Minor security fix: Due to a ReDoS (Regular expression Denial of Service) vulnerability discovered in the Vue third-party library that is bundled in REDCap, the Vue library has been upgraded to a newer version that does not contain the vulnerability.
- Security improvement: When using REDCap's Two-Factor Authentication, the OTP (One Time Password) encryption secret, which is stored for a user in the back-end database and is used to generate their QR code for 2FA, has been increased to 160 bits to meet certain security standards. Note: This change will not affect existing users' ability to continue using their already-established Microsoft/Google Authenticator mobile app for 2FA in REDCap.
- Change: Updated REDCap's session handler functions to be compatible with the upcoming PHP 8.4 release. Thus, the only REDCap versions that are compatible with PHP 8.4 are REDCap 14.7.4 and higher.
- Change/improvement: The dates displayed in the "Other useful info" box on the main Control Center page are now listed in the date format dictated by the user's profile date format preference.
- Change: On the Survey Invitation Log and Notification Log, a new warning has been added to the page when a project is in Analysis/Cleanup project status to denote that any already-scheduled survey invitations or alerts will not be sent while in Analysis/Cleanup status, despite the fact that the user may see scheduled invitations/alerts on those pages.
- Change: The "Online Designer" video on the Training Videos page was updated, and a new video "Randomization" was added.
- Change: When using Multi-Language Management in a MyCap-enabled project, the MLM setup page will now display a warning to users when adding an MLM language when the country code isn't supported in the MyCap mobile app.
- Bug fix: A PHP fatal error might occur when enabling a PROMIS battery measure for MyCap.
- Bug fix: A duplicate language key for MyCap existed in the English.ini file. (Ticket #243930)
- Bug fix: In certain cases, when creating a new project using a Project XML file that contains Custom Record Status Dashboards, the "Select instruments/events" attribute might not get set correctly during the import, thus causing that dashboard not to display any instruments when viewing it. (Ticket #243909)
- Bug fix: In some rare cases when upgrading from a REDCap version lower than 14.3.1, the upgrade page might mistakenly fail to load completely. Bug emerged in REDCap 14.3.1 Standard. Note: This was supposedly fixed in the previous release, but mistakenly it was not.
- Bug fix: The Smart Variable [mycap-participant-code] might display a blank value when being utilized on an instrument with a different event or page where the event ID is set in the URL (if different from the event ID stored in redcap_survey_participants database table).
- Bug fix: When certain record-based [survey-X] Smart Variables are utilized on a survey or data entry form (e.g., CALCTEXT([survey-access-code])), in which the record has not been created yet, duplicate rows might mistakenly be added for the resulting record in the Participant List.

- Bug fix: When clicking the "Download all" button when viewing the PDF Snapshot Archive in the File Repository, any PDF snapshots created using a logic-based snapshot trigger would mistakenly not be included in the downloaded zip file. (Ticket #243743)
- Bug fix: When enabling MyCap on a project that has existing records, the MyCap participant code would mistakenly not get populated for fields with the action tag @MC-PARTICIPANT-CODE.
- Bug fix: When importing data using the Data Import Tool or API, it would mistakenly not be possible to import Missing Data Codes for a Slider field. (Ticket #243896)
- Bug fix: When uploading user role assignments via CSV on the User Rights page, if the username in the CSV file has trailing spaces, those spaces might mistakenly not get removed when saving the user role assignments in the project. (Ticket #243138b)

Version 14.7.3

- Medium security fix: A Reflected XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into the value of a Text field or Notes field by authenticated users on a data entry form or by survey participants on a survey. It can only be exploited by entering text containing the HTML "embed" tag when dynamic piping is happening on the current page via JavaScript. Bug emerged in REDCap 14.5.0.
- Change/improvement: Better error reporting during CSV file import into MLM.
- Change/improvement: Minor changes have been made to how the syntax files for R and SPSS are generated in order to improve the coding of labels in the syntax files. (Ticket #225047)
- Change: New clarifying text was added to the instructional text displayed above the "Consent Form (Rich Text)" option in the "Add Consent Form" dialog on the e-Consent Framework page in order to indicate that images added via the rich text editor there will not be rendered in PDF exports or in stored PDF snapshots that include that consent form text.
- Various changes for the External Module Framework, including the following: 1) The External Modules Framework error handling behavior has changed significantly. Every module error detected is now logged in the database instead of emailed. When errors occur, one email is sent per module per hour asking admins to check the "Recent Errors" page in Control Center for more details. And 2) Misc. security scan improvements.
- Bug fix: If a user assigned to a Data Access Group is viewing the Notification Log for "Alerts & Notifications", in which one or more alerts have been set as a recurring alert, the page would mistakenly display future notifications for records not in the user's DAG. (Ticket #243195)
- Bug fix: If a user is importing data via the API or Data Import Tool, in which the user is not assigned to a DAG and the data import file contains the "redcap_data_access_group" field, if the import file contains multiple records and the "Overwrite data with blank values?" setting is set to "Yes", then any records that are currently assigned to a DAG but have a blank value for the "redcap_data_access_group" field in the import file would get correctly unassigned from their current DAG, but the Record List Cache would mistakenly not get updated to reflect this DAG unassignment. This means that until the Record List Cache is reset, the record might appear to be in a DAG even though it is technically not assigned to a DAG anymore. (Ticket #242983)
- Bug fix: If an alert has been created with the "When to send the alert" setting as "Send the alert X [units] after the day (beginning at midnight) that the alert was triggered", then downloading the alerts as a CSV file and then re-uploading them would result in an error for this particular setting. (Ticket #237215)
- Bug fix: In rare cases, a fatal PHP error might occur on a survey when using PHP 8. (Ticket #243300)
- Bug fix: In some cases, the Background Data Import process might mistakenly fail to finalize itself even after all records appear to have been successfully imported. (Ticket #243425)
- Bug fix: In some rare cases when upgrading from a REDCap version lower than 14.3.1, the upgrade page might mistakenly fail to load completely. Bug emerged in REDCap 14.3.1 Standard.
- Bug fix: The "Download form display logic setup" drop-down option in the Online Designer form-view would mistakenly not be visible because it would be obscured by the table immediately below it. (Ticket #243052)
- Bug fix: The API method "Export a List of Files/Folders from the File Repository" would mistakenly require API Import privileges. It should only require API Export privileges and File Repository privileges in the project. (Ticket #243161)
- Bug fix: The Email Users page would mistakenly list users that do not have the "Display user on 'Email Users' page?" checkbox checked for them on the Browse Users page in the Control Center. (Ticket #234149)
- Bug fix: When downloading a PDF of a survey instrument or when REDCap is storing a PDF Snapshot of a survey instrument, certain HTML tags that exist in the survey instruction text might mistakenly get stripped out before being properly processed into line breaks, etc. for the PDF. Bug emerged in REDCap 14.5.0. (Ticket #243240)

- Bug fix: When uploading user-DAG assignments via CSV on the Data Access Groups page, if the username in the CSV file has trailing spaces, those spaces might mistakenly not get removed when saving the user-DAG mappings in the project, which could cause the DAG page's table not to display all DAG users in the "Users in group" column. (Ticket #243138)
- Bug fix: When using Multi-Language Management, if a field has the @LANGUAGE-SET action tag, the language-switching functionality will not work for it if the field is embedded. (Ticket #243593)

Version 14.7.2

- Major security fix: A Stored XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into a Text field or Notes field whose value is being piped on the same page of a survey or data entry form. This vulnerability can be exploited by authenticated users and also by survey participants entering data. Bug emerged in REDCap 14.5.0.
- Improvement: Users may now pipe the field label of a given field (instead of its data value) by appending ":field-label" to the variable name inside the square brackets. (Ticket #229991)
- Change/improvement: Added a new "Learn Advanced Design Features" link on the project left-hand menu that, when clicked, opens a panel displaying buttons to learn about Smart Variables, Piping, Action Tags, Embedding, and Special Functions.
- Change/improvement: The API Token Request Email that is sent to an administrator when a user requests a token (if this behavior is enabled at the system level) now contains the project PID number and a link to the project. (Ticket #242747)
- Change: The "Video Tutorials" link on the project left-hand menu now takes the user to the Training Video page rather than displaying a list of specific video links below it.
- Bug fix: Adding a new field via the Online Designer would result in a JavaScript error in the user's browser console.
- Bug fix: If an email contains a piped File Upload field variable using the ":inline" piping option (e.g., [my_file:inline]), for certain email servers and certain email configurations in REDCap (e.g., SMTP), the file would mistakenly not get attached to the email as a regular attachment if the file is not an image file. (Ticket #242935b)
- Bug fix: If an email contains a piped File Upload field variable using the ":link" piping option (e.g., [my_file:link]), clicking the download link in the email would mistakenly display the error message "NOTICE: This file is no longer available for download" rather than downloading the file. (Ticket #242935)
- Bug fix: If upgrading from a REDCap version lower than 13.10.0, the upgrade page might mistakenly fail to load completely. Bug emerged in REDCap 14.6.11 Standard.
- Bug fix: In certain situations, one of the Clinical Data Pull (CDP) cron jobs for CDIS might crash unexpectedly.
- Bug fix: Modifying the value of a drop-down field, specifically one that has autocomplete enabled, would mistakenly not trigger the "Save your changes?" dialog or the "Reason for change" dialog (if enabled) in the project. (Ticket #242610)
- Bug fix: Some of the CDP performance improvements released in the previous release (14.7.1) were mistakenly not optimized in certain situations, thus causing the CDP cron job to cause some SQL queries to run slow and slow down the cron job.
- Bug fix: When data is exported from the Database Query Tool while "query context" was used in the query, this context was not properly evaluated and the page crashed during the export.
- Bug fix: When exporting data via the Export Records API method with parameter type=eav, if any duplicate values somehow exist in the backend data table for a single field, those duplicates would mistakenly be output in the resulting data that is returned from the API. (Ticket #242493)
- Bug fix: When importing data into a longitudinal project (whether via API, Data Import Tool, Mobile App, or data in a Project XML file), in which data for a repeating event or repeating instrument is being imported when the first instrument in the project is not designated for the event of data being imported, in certain situations the form status field for the first instrument might mistakenly receive a "0" (Incomplete) value during the import, even when that field is not included in the data being imported. This inadvertently creates data values that are automatically orphaned and never accessible in the user interface except in reports and data exports. (Ticket #242590)
- Bug fix: When the e-Consent Framework is enabled for a survey, the "Save & Mark Survey as Complete" button would mistakenly be displayed when viewing the instrument as a data entry form. Clicking this save button would mark the survey as complete and log it as if an e-Consent certification took place, when in fact it did not because the certification was essentially bypassed. e-Consent surveys should only ever be completed on the survey page itself and not on a data entry form. Going forward, the "Save & Mark Survey as Complete" button will no longer

be displayed on the data entry form for any survey instrument that has the e-Consent Framework enabled. (Ticket #242860)

- Bug fix: When uploading a file for a File Upload field, in which the file exceeds the system-level maximum file size setting for File Upload fields, the file would mistakenly remain on the server for 30 days until it was then permanently deleted. Going forward, the file will never be initially stored in the system if it exceeds the file size limit.
- Bug fix: When using the "Go to field" functionality in the Online Designer (Ctrl-G or Cmd-G) and searching for a field by typing in part of the variable name or field label, a JavaScript error would be thrown in the browser console if the current instrument does not have any fields. (Ticket #242884)

Version 14.7.1

- Improvement: Better error handling in PHP for External Modules. Additionally, a new Control Center menu item named "Recent Errors" now appears on the left-hand menu in the "Dashboards & Activity" section.
- Improvement: In MyCap-enabled projects, a new "Form completion status" setting has been added in the Online Designer that controls how a MyCap task's form completion status value is set when a task is submitted by a participant from the MyCap mobile app to the REDCap server.
  - In previous versions, the MyCap task's form completion status would always be set to Incomplete. But now, it can be set to Incomplete, Unverified, or Complete so that the form status value is set to that specified status value any time that a participant completes a MyCap task. This setting can be modified at any point during data collection in a MyCap project.
  - Note: Existing projects will maintain their existing default status setting of Incomplete, but that setting can be changed after the fact if desired. In contrast, all newly created projects will default to a status setting of Complete. However, if a new project is created using a Project Template that has MyCap enabled, the new project will adopt the MyCap form status setting of the Project Template. If you wish to change the default MyCap form status setting for all Project Templates that have MyCap enabled, run the following SQL (this is optional). This will ensure that all new projects, including those created via Project Templates will have this new setting set to Complete by default. Optional SQL: UPDATE redcap_projects p, redcap_projects_templates t SET p.task_complete_status = '2' WHERE p.mycap_enabled AND p.project_id = t.project_id;
- Improvement: MLM languages now have a "Notes" field that can hold general notes regarding each MLM language on the MLM setup page (inside the Add/Edit Language dialog). These notes have no impact on MLM performance.
- Improvements: New CDIS-related resource monitor which helps manage resource-intensive processes more effectively. This does not have a user interface but just helps improve performance in the background. Additionally, the number of queued records for Clinical Data Pull (CDP) being fetched from the EHR system during a single cron job batch has been increased to allow for more records to be processed in a given period of time.
- Various changes and improvements for the External Module Framework, including the following:
  - Added isMlmActive() method and getCurrentLanguage() method to javascript external module objects
  - Renamed the bundled "Configuration Example" external module to "Module Development Examples"
  - Added the $module->getSelectedCheckboxes() method
  - Added a Twig development exercise to the external module documentation
  - Prevented an error when "Export list with design rights users" is selected for modules not enabled on any projects
  - Misc. security scan improvements
- Major bug fix: In some extremely rare cases, it might be possible that the same return code could be generated for two different participants taking the same public survey. In certain situations, this could possibly allow one participant to inadvertently view the responses of another participant. (Ticket #241815)
- Change/improvement: In MyCap-enabled projects, several MyCap settings (Baseline Date Settings, Custom Event Label Settings, and new Form Completion Status setting) in the Online Designer have now been aggregated in a new"Additional Settings" dialog on that page.
- Change: The instructional text for the "Automatic Triggering Option" on the Randomization page has been modified for improved clarity.
- Bug fix: If a record is deleted when the data privacy/GDPR feature "Delete a record's logging activity when deleting the record?" is enabled in a project, the email log associated with that record would mistakenly not get deleted along with the regular logging information. Note: This fix will not retroactively remove the email logging of already-deleted records in projects with this feature enabled, but it will prevent this issue from occurring in the future. (Ticket #242184)

- Bug fix: If data exists for a field used in branching logic or in a calculation in a longitudinal project, in which the data is orphaned from a previously-repeating instrument or event (i.e., it is no longer repeating but had data collected for it back when it was repeating), then some of the orphaned data might mistakenly be used on a survey/form for cross-event branching logic and calculations, thus causing the branching/calc not to behave as expected.
- Bug fix: In specific instances when a field in the Online Designer is edited and then moved via drag-n-drop, the field might end up located in the wrong position on the instrument afterward.
- Bug fix: In very specific situations after submitting the first page of a multi-page survey, the Required Field dialog might mistakenly be displayed saying that a field that is not present on the first page (but is present on the second page) has a missing value. (Ticket #236511)
- Bug fix: Minor text error in the Smart Variable documentation.
- Bug fix: Multi-instrument PDF Snapshots were likely to be malformed in larger/complex projects when MLM was enabled. (Ticket #242031)
- Bug fix: The Custom Event Label might cause significant performance issues to arise on the Record Home Page for certain projects.
- Bug fix: The cron job responsible for fetching data from the EHR system via CDIS might be unable to retrieve a valid FHIR access token under specific conditions, causing the fetch process to fail. Additionally, the EHR ID might mistakenly not get logged in the FHIR Logs database table during CDIS processes.
- Bug fix: Typo in randomization setup instructions. (Ticket #242219)
- Bug fix: When a REDCap administrator is viewing an allocation/sequence on the randomization dashboard for a single-strata randomization model, in which the current strata value being viewed has a raw value of "0", an incorrect error message might be displayed. (Ticket #242219)
- Bug fix: When a given REDCap page does not contain any "h" HTML tags, a JavaScript error would be thrown in the browser console.
- Bug fix: When a project is utilizing the Survey Queue together with the Survey Login feature, in which a survey participant has already logged in to a survey but then later reopens that same survey during the same "session", the icon/link to the Survey Queue would mistakenly not appear at the top-right of the first page of that survey as it should, even when some surveys exist in the participant's survey queue. (Ticket #242182)
- Bug fix: When a repeating instrument is enabled as a survey, and a participant navigates to that survey with "&new" appended to the URL to denote that a new repeating instance should be created from that response, branching logic and/or calculations on the survey page would mistakenly not work as expected if the fields used in the branching/calculations exist on a different instrument. Bug emerged in REDCap 14.5.14 LTS and 14.6.8 Standard Release.
- Bug fix: When certain video types (e.g., MP4) are added to the Embed Media URL of a Descriptive field, the video might not be playable for certain mobile browsers, such as Mobile Safari on iOS, if the project has MLM enabled on the current form/survey. (Ticket #241505b)
- Bug fix: When creating a new project via a Project XML file, in which the project contains one or more logic-based PDF Snapshot triggers, it might cause the project not to be fully created and thus not accessible to the user afterward.
- Bug fix: When exporting a Project XML file containing data for a longitudinal project that has repeating instruments, the resulting XML might be malformed in the file, thus causing some of the repeating instrument data not to get transferred to a new project created from the XML file.
- Bug fix: When moving an entire matrix of fields in the Online Designer to the top of another instrument, an error would result, thus preventing the matrix from being moved successfully.
- Bug fix: When moving an entire matrix of fields in the Online Designer, especially when moving them to another instrument, some fields in the matrix may not get moved successfully and/or the fields in the instrument might be messed up in various ways in the backend database, thus causing things not to display correctly for the instrument. (Ticket #236128, #241606)
- Bug fix: When uploading an Instrument Zip file or when copying an instrument in the Online Designer, if a field in the instrument has branching logic that contains an inline comment with and odd number of single quotes and/or double quotes, it would prevent the instrument from being uploaded or copied, respectively. (Ticket #241955)
- Bug fix: When using Multi-Language Management, floating matrix headers were not aligned properly on surveys for right-to-left languages. (Ticket #222689b)
- Bug fix: When using Twilio or Mosio telephony features in a project, in which an Automated Survey Invitation is set to be triggered and sent using the "participant's preference" for the ASI invitation type, if the mappable invitation preference field is being utilized in the project, then if a user sets the value for the invitation preference field on a form/survey, in which the ASI gets triggered and one or more calculated fields from other forms/events get subsequently triggered from the form/survey save, then the ASI will be sent/scheduled using the project's

default value for delivery preference rather than using the participant's already-set delivery preference (from the invitation preference field). (Ticket #242434)

- Bug fix: When using Twilio or Mosio, it would mistakenly not send SMS messages to U.S. phone numbers with certain newer area codes, specifically 235, 324, 329, 353, 436, 624, 645, 686, 728, and 861.
- Bug fix: When using the Automatic Triggering Option for Randomization in a project, a record might mistakenly be automatically randomized on a survey (assuming the logic evaluates as true) when the Automatic Triggering Option is set to only trigger for users with the Randomize permission (i.e., not for survey respondents). (Ticket #242300)
- Bug fix: When using the Automatic Triggering Option for Randomization in a project, in which data is being saved on a form or survey for an already-randomized record, the automatic triggering might mistakenly attempt to randomize the record again, thus resulting in a fatal PHP error. (Ticket #242300)
- Bug fix: When using the Automatic Triggering Option for Randomization in a project, the data value saved for the randomization field itself might mistakenly not get explicitly recorded in the project Logging. However, the randomization event itself does get correctly logged. (Ticket #242300)

Version 14.7.0

- New features: Randomization enhancements
  - Note: Thanks to Luke Stevens (Murdoch Children's Research Institute) for his contribution in building these new randomization features.
  - A) Multiple randomizations in a project - Users may now define more than one randomization model in a single project. Each randomization model has its own settings (e.g., strata, randomization field, allocation table), and is completely independent of the other models.
  - B) Blinded randomization support - Users may now create a randomization model that is blinded/concealed as a means of concealing the allocation (randomization value) from users to be able to have a truly blinded randomized clinical trial, for example. Users may still choose to create an "open" randomization model (as they always could) by choosing a single-select multiple choice field (e.g., drop-down or radio) to be the randomization field. Alternatively, users may now choose any text field [that does not have field validation] to represent the "randomization number". The randomization number can be uploaded as part of the allocation table, and when a record is then randomized, the field is given the randomization number as its value.
  - C) New Smart Variables
  - - [rand-number] - The randomization number assigned to the record. For randomization in a text field (blinded allocation), this is equivalent to piping the randomization field. For randomization in a categorical field (open allocation), this will be the randomization number associated with the randomization group allocation, if one has been uploaded (this is optional). Use :n to refer to a specific randomization where a project has more than one (default=1).
  - - [rand-time] - The server date and time at which a record was randomized. In a piping context, such as in a field label, survey invitation, or inside the @default action tag, the format of the date and time will be displayed based on the current user's date/time display preferences. If you wish to have it return the raw value, which will instead be in 'YYYY-MM-DD HH:MM:SS' format and would be more appropriate for conditional logic or calculated fields, simply append :value. Use :n to refer to a specific randomization where a project has more than one (default=1).
  - - [rand-utc-time] - The UTC date and time at which a record was randomized. In a piping context, such as in a field label, survey invitation, or inside the @default action tag, the format of the date and time will be displayed based on the current user's date/time display preferences. If you wish to have it return the raw value, which will instead be in 'YYYY-MM-DD HH:MM:SS' format and would be more appropriate for conditional logic or calculated fields, simply append :value. Use :n to refer to a specific randomization where a project has more than one (default=1).
  - D) New "Randomize Record" API method - This method allows an API user to randomize a record using the API. The API parameters required are content="record", action="randomize", record=Record name of record to randomize, and randomization_id=The unique id of the randomization (viewable on the Randomization page for users with Design permissions or on the API Playground page), which corresponds to a specific target field and event. This API method returns the value for the target randomization field (plus optionally the alternative target value), or an error message on failure (such as if the record does not exist or if stratification information is missing).
  - E) New developer methods

- ○ - REDCap::getNextRandomizationAllocation() - Returns the integer allocation id if an unallocated entry is found, or string '0' if no entry is available (allocation table is exhausted). Returns false on error, e.g. if incorrect stratification information provided.
- ○ - REDCap::updateRandomizationTableEntry() - Updates the target (randomization field or number), alternate target (randomization group or number), or "is_used_by" (e.g., the record to which this allocation/sequence belongs) details for a specified allocation table entry. For example, this method can be utilized to effectively perform the randomization action itself.
- ○ F) New External Module Hook "redcap_module_randomize_record" - Allows custom actions to be performed prior to the randomization of a record - e.g., to override the default randomization allocation. This hook enables implementation of custom randomization allocation routines, e.g. dynamic randomization via minimization. It is expected that only one external module implementing this hook will be enabled in a single project. A warning will be generated if multiple external modules return results from this hook. Location of Execution: The function is executed immediately prior to lookup and assignment of the next available entry in the randomization allocation table. This lookup and allocation is skipped if all redcap_randomize_record hooks return false.
- ○ G) Real-Time Trigger Logic - Randomization can be automated to occur in real time when an instrument is saved and a specified logic expression becomes True, in which all required stratification information must be present. At the bottom of the randomization setup page for a given randomization model, the following options are displayed.
- ○ - Manual only (default) - A user with "Randomize" user permissions must click the "Randomize" button on the data entry form where the randomization field is located.
- ○ - Trigger logic, for users with Randomize permissions only - When the Save button on a specified data entry form is clicked, if the logic expression provided evaluates to True and the current user has "Randomize" user permissions, the record will automatically be randomized (i.e., without clicking a "Randomize" button).
- ○ - Trigger logic, for all users (including survey respondents) - When the Save button on a specified data entry form or survey page is clicked, if the logic expression provided evaluates to True (despite the user's permissions if on a data entry form), the record will automatically be randomized.
- ○ H) New options for REDCap administrators [only] to perform the actions below, which are meant to be used in rare/unexpected situations. These can be found when viewing the allocation table under the Dashboard section of a randomization model. Note: Whenever an administrator uses one of the actions, they must provide a "reason" as text, which gets added to the project Logging.
- ○ - Manually randomize a record - Provide a value for a randomization group or number to manually set the randomization value for a specified record.
- ○ - Remove the randomization for a record (un-randomize it) - If a record has already been randomized, remove that record's randomization allocation so that it will no longer appear randomized and so that another record might possibly get assigned that allocation.
- ○ - Edit an allocation/sequence - Modify the randomization group and/or randomization number value for an unallocated sequence. This is essentially the equivalent of modifying an existing allocation table.
- ○ - Make an allocation/sequence unavailable - Remove an allocation/sequence so that it will not be used in a future randomization. This is essentially the equivalent of removing a row from an existing allocation table.
- ○ I) Project XML & Copy Project - Randomization model settings have now been added as an optional component to copy when doing a "Copy Project" action or when exporting->creating a project via a Project XML file.
- Improvement: In a MyCap-enabled project that is using Multi-Language Management, users can now more easily populate the MyCap Language ID and Language display name by clicking the MLM language ID from the allowed languages list on the MLM setup page for the MyCap mobile app (via the Add/Edit Language popup). These were merely displayed in previous versions, but now they are clickable, which makes them easier to add to the MLM setup page.
- Improvement: In a MyCap-enabled project, the "View Task Details" popup in the Online Designer now includes detailed scheduling information per event for longitudinal projects.
- Improvement: New MLM action tag LANGUAGE-MENU-STATIC - When this action tag is present on any field of an instrument enabled as a survey, and Multi-Language Management is active with at least two active languages, the language selection menu will remain visible at all times (i.e., it will not collapse after a language button has been clicked). (Ticket #241790)
- Improvement: New piping option ":hideunderscore" - If a field value or Smart Variable value is blank/null (i.e., does not exist), then by default the blank value will be piped as six underscore characters (literally _____) as a placeholder to visually indicate that no value exists. However, if this behavior is not desired, users may append :hideunderscore to the variable name inside the square brackets (e.g., [first_name:hideunderscore],

[race:value:hideunderscore]), and this will cause value to be piped as-is, that is, as a blank/null/invisible value. Note: The :hideunderscore notation may be appended to both field variables and Smart Variables.

- Major bug fix: If a project has one or more [non-e-Consent] PDF Snapshots enabled to be triggered by the completion of a specific survey, in which that same survey has had the e-Consent Framework enabled in the past but is currently disabled for the survey, in certain situations the active PDF Snapshots would mistakenly not get triggered and saved when the survey is completed by a participant. Bug emerged in REDCap 14.5.11 LTS and 14.6.5 Standard. (Ticket #241710)
- Change: On the MyCap Configuration Check page in the Control Center, the PID has been added for each project displayed in the project drop-down list on that page.
- Change: The newer-style "disabled" buttons in the Online Designer (added in REDCap 14.6.11) have been slightly modified from an encircled X to an encircled dash since it is thought that an X might imply a "delete" action rather than a "disabled" state. Additionally, the event-level ASI "Modify" buttons that are displayed in longitudinal projects when clicking the "Automated Invitations" button next to each survey in the Online Designer were updated with the new icons that were added elsewhere in the previous version.
- Change: Two new videos were updated: "Field Types" and "Online Designer".
- Change: Various minor bug fixes and enhancements for Multi-Language Management (mostly related to export and change tracking with regard to MyCap items).
- Bug fix: When a participant has completed an e-Consent survey, in which a consent form has been defined on the e-Consent Framework page for that survey, and then a PDF of that response is later downloaded or a PDF Snapshot of that response is later saved, the resulting PDF would mistakenly not always contain the consent form that the participant saw when they completed the survey, but (especially when MLM is not being used) they would see a newer version of the consent form, assuming a newer version of the consent form has been added to that survey. (Ticket #241501)
- Bug fix: When certain video types (e.g., MP4) are added to the Embed Media URL of a Descriptive field, the video might not be playable for certain mobile browsers, such as Mobile Safari on iOS. (Ticket #241505)
- Bug fix: When exporting a Project XML file that contains e-Consent Framework settings, if the project is longitudinal and the e-Consent settings have a "Last name field" or "Date of birth field" defined, the e-Consent settings might not get successfully imported into the new project created using the Project XML file. Bug emerged in REDCap 14.5.0.

Version 14.6.11

- Major security fix: If a malicious user is logged in and has access to at least one report in one project, they could potentially manipulate the URL of specific REDCap end-points in order to view the results of any report for any project, even when they do not have access to that report or project.
- Improvement: A new PDF download button has been added to the instrument-view of the Online Designer to allow users to download all instruments as a single PDF.
- Improvement: REDCap now supports the "progress" and "meter" HTML tags so that they may be utilized in user input (e.g., field labels, survey instructions).
- Improvement: Slight aesthetic changes have been made to the buttons displayed in the instrument-view of the Online Designer. Additionally, the "e-Consent and PDF Snapshot" button has been separated into two separate buttons under Survey Options and Form Options, respectively.
- Improvement: The improved "Field Navigator" on the Online Designer now always floats on the right-hand side of the page and also has links to allow users to jump to specific Section Headers on the page.
- Improvement: When the Google reCAPTCHA feature is enabled, administrators may now set the default state of that feature (as either initially enabled or disabled) in newly created projects. This can be set in the Google reCAPTCHA section of the Modules/Services Configuration page in the Control Center. By default, this new setting is set to "Disabled by default for new projects". (Ticket #237045)
- Major bug fix: Some of the AJAX end-points used by the Email Users page in the Control Center would mistakenly allow non-administrators to access them (if a user knows how), which could allow normal users to possibly view the list of all users (usernames, names, and emails) in the system.
- Change: For predefined ResearchKit active tasks in MyCap-enabled longitudinal projects, the "Active Task Settings" section on the task setup page has been moved to the task-level instead of the event-level (as seen in previous versions). Thus, there will be only one "active task setting" per task available even if multiple events are enabled on the task setup.
- Change: Question Numbering on surveys is now set to "Custom numbered" by default when enabling an instrument as a survey.

- Change: The "Preview instrument" button on the field-view page of the Online Designer has now been removed due to seldom use and also because in recent years it no longer provides a reliable presentation of the instrument for moderately-complex projects. (Ticket #241293)
- Bug fix: An issue would occur for Clinical Data Pull (CDP) projects in which entries in the redcap_ddp_records database table were incorrectly marked with a "future date count" > 0 if no temporal fields were mapped but date fields were present in the project. This would cause affected records not to be queued for automatic fetching in the background.
- Bug fix: For some server configurations, the MyCap logo displayed on the Multi-Language Management setup page might either not be displayed or might cause the whole page not to be displayed in MyCap-enabled projects. (Ticket #241449)
- Bug fix: In very rare situations, when a person receives a file via Send-It, they would not be able to download it because it may appear to have already expired prematurely.
- Bug fix: The question-mark popover in Step 2A option 3 when adding/editing an alert on the Alerts & Notifications page would mistakenly display escaped HTML in the popover rather than interpreting the HTML tags.
- Bug fix: When a radio or drop-down field has numeric-only choice codes, in which the field has a blank/null value and is used in the concat_ws() function, the field would mistakenly be represented as "NaN" (in JavaScript) and as "NAN" (in PHP) in the result of concat_ws(). (Ticket #241098)
- Bug fix: When a survey has the e-Consent Framework enabled and also has "Save & Return Later" enabled with the "Allow respondents to return without needing a return code" option checked, the survey would mistakenly display a Return Code when the participant clicks the "Save & Return Later" button, and it would also ask for a Return Code when loading the survey page after having not completed it. Bug emerged in REDCap 14.5.15 and 14.6.9. (Ticket #241142)
- Bug fix: When clicking a value displayed in the results of a Data Quality rule, which opens the data entry form in a new tab, it would mistakenly not put the focus on the field if the field is a Notes field type. (Ticket #241058)
- Bug fix: When deleting a user account when viewing an individual account on the Browse Users page in the Control Center, the User Search text box on the page would mistakenly no longer be functional for searching unless the page is reloaded. (Ticket #241142)
- Bug fix: When the first field on a given instrument has a section header above it, and then in the Online Designer a user attempts to add a field between the section header and the field immediately below it, if the project is in draft mode while in production, the newly added might get added but would end up in a weird limbo state so that the field might not be visible afterward. (Ticket #241530)
- Bug fix: When using MLM for translating survey invitations, specifically those sent via SMS, it could cause a fatal PHP error for the cron job when using PHP 8. (Ticket #92266b)
- Bug fix: When using Multi-Language Management, the wrong message was shown on the Misc tab for the base language on the MLM setup page.
- Bug fix: When using the READONLY action tag on the Secondary Unique Field on a survey that has the SUF prefilled via URL variables, the field would mistakenly be editable and not read-only. Note: This occurs only on the SUF when viewed specifically in survey mode, and only when prefilling is being performed. Also, this was supposedly fixed in REDCap 14.5.8 LTS and 14.6.2 Standard, but it was apparently only fixed in specific use cases. (Ticket #237623b)

Version 14.6.10

- Improvement: Accessibility improvements have been made to all Control Center pages and other non-project pages (e.g., My Projects, REDCap Home Page) with specific regard to improving the color contrast of text on the page.
- Improvement: More documentation has been added for Shibboleth authentication on the Security & Authentication page to set up the auto-import feature for a user's first name, last name, and/or email address.
- Major bug fix: If the REDCap installation has opted in to the feature of adding an auto-incremented Primary Key to every database table, an SQL query would prevent all draft mode changes from being committed while in production. Thus the user is not able to make any production changes. (Ticket #240564)
- Bug fix: For certain PHP versions, a JavaScript error might occur on the Project Setup page when enabling the Mosio feature.
- Bug fix: For projects in draft mode using the e-Consent Framework that have had a field modified or deleted on an e-Consent survey, the notice displayed to the user prior to submitting their drafted changes for approval (which mentions that the user should probably change the e-Consent version number) is no longer applicable in v14.5.0+ because the version number is no longer necessarily connected to the survey or its fields anymore in v14.5.0+ but instead is connected only to the consent form displayed on the survey. Given this, it no longer makes sense to

display this notice to the user. Thus, the notice will no longer appear to users in this specific situation. (Ticket #240518)
- Bug fix: If the Survey Base URL is being used together with Clickjacking Prevention in the REDCap installation, it would prevent any of the "Custom Surveys for Project Status Transitions" survey pages from loading in a user's browser. (Ticket #240644)
- Bug fix: The style/CSS of certain elements on the "Help & FAQ" page were not correct.
- Bug fix: The text of some dialogs that appear on PROMIS surveys were mistakenly not available to be translated via Multi-Language Management. (Ticket #239286)
- Version 14.6.9(released on 2024-09-20)
- Improvement: For MyCap projects that are longitudinal with multiple arms, users may now designate a Baseline Date Field for every arm on the baseline date setup popup in the Online Designer.
- Improvement: When using Shibboleth authentication for REDCap, admins may now enable a new setting on the Security & Authentication page to allow REDCap to automatically import a user's first name, last name, and/or email address the first time they log in or every time they log in to REDCap. Note: This may require some configuration changes on the Shibboleth side so that these user attributes appear as new $_SERVER variables.

Version 14.6.9

- Improvement: For MyCap projects that are longitudinal with multiple arms, users may now designate a Baseline Date Field for every arm on the baseline date setup popup in the Online Designer.
- Improvement: When using Shibboleth authentication for REDCap, admins may now enable a new setting on the Security & Authentication page to allow REDCap to automatically import a user's first name, last name, and/or email address the first time they log in or every time they log in to REDCap. Note: This may require some configuration changes on the Shibboleth side so that these user attributes appear as new $_SERVER variables.
- Major bug fix: When importing data (via Data Import Tool, API, Mobile App, etc.) into a project that contains Data Access Groups, an erroneous message might be returned stating that the records being imported cannot be modified because they do not belong to the user's DAG, in which it names existing records in the project (not the records being imported). This would prevent the data import process from starting, and if using the Background Data Import, that process might mistakenly fail midway through the import, thus needing to be re-imported. Bug emerged in the previous version. (Ticket #240514)
- Bug fix: Further fixes for a possible upgrade error with regard to foreign keys on specific tables that occur for some installations under specific circumstances.
- Bug fix: If a survey has the e-Consent Framework enabled and also has "Save & Return Later" enabled with "Allow respondents to return and modify completed responses", this combination could cause major issues with regard to the state of the data of a participant's informed consent if they are allowed to modify their own completed e-Consent response. In this specific situation going forward, the "Allow respondents to return and modify completed responses" setting will be automatically disabled and thus will prevent participants from modifying their completed e-Consent response. Additionally, the "Allow respondents to return and modify completed responses" setting will be disabled on the Survey Settings page if the current survey has the e-Consent Framework enabled, and it will display a note beneath the setting to inform users why it is disabled. (Ticket #240265)
- Bug fix: The page number that is displayed near the top right of multi-page surveys would mistakenly not be fully right-aligned on the page when using a non-fixed width setting for the survey page.
- Bug fix: When exporting data to SPSS, any field labels longer than 256 bytes would result as an error when loaded into SPSS.
- Bug fix: When using Shibboleth authentication for REDCap, and a survey participant opens a survey page that contains an inline PDF, the PDF might mistakenly not be displayed but would display a login page inside an iframe. (Ticket #240240)
- Bug fix: When using the Data Resolution Workflow along with Data Access Groups in a project, if a user attempts to assign a data query to a user, in some situations the drop-down list of assignable users would mistakenly list users that are not currently eligible to be assigned to the data query because they are not currently assigned to the record's DAG. It should only list users that are currently in the record's DAG (or users not in any DAG) if the record itself is assigned to a DAG. This bug was supposedly fixed in REDCap 13.10.2 but mistakenly was not. (Ticket #213770b)

Version 14.6.8

- Various changes and fixes for the External Modules Framework, including: 1) Added a warning about External Module composer dependency conflicts above the Control Center module management list, 2) Fixed an error with

the "external_modules" framework development dir's out of date detection, 3) Updated Twig from v3.11.0 to v3.11.1, and 4) Misc. security scan updates.

- Major bug fix: Resolved an issue in the CDIS module that caused errors and disrupted normal operations in environments running PHP versions lower than 8.0. This bug affected: CDP auto-adjudication process, Mapping helper usage, and Data Mart operations. The fix ensures proper handling of user data, allowing CDIS to function smoothly across different PHP versions. Bug emerged in the previous release. (Ticket #240182)
- Change/improvement: Better support for handling various authentication methods in a CDIS context (e.g., logging into REDCap via "Launch from EHR" context for CDP).
- Bug fix: Fix possible upgrade error with regard to foreign keys on specific tables that occurs for some installations under specific circumstances.
- Bug fix: When a repeating instrument is enabled as a survey, and a participant navigates to that survey with "&new" appended to the URL to denote that a new repeating instance should be created from that response, the survey page would mistakenly get pre-filled with existing data if instance 1 of the instrument contains data and was created via a data entry form. When "&new" is appended to a survey URL, the survey should never get pre-filled with any saved data. (Ticket #239909)
- Bug fix: When executing a custom data quality rule on a multi-arm project, in which the rule's logic implies that only records in certain arms should be returned in the results, the results might mistakenly return false positives of data from arms in which the records do not actually exist. (Ticket #237137)
- Bug fix: When exporting the Logging page as a CSV file, some logged events (e.g., "Invalid SMS response") might mistakenly say "Record 101" rather than just "101" in the record column of the CSV file. This is inconsistent with how the record name is displayed in that column for other logged events. (Ticket #239394)
- Bug fix: When reports or data exports are sorted by a multiple choice field that has only integers as its choice codes, the data for that field would mistakenly be sorted as a text string rather than appropriately sorted as a number.
- Bug fix: When upgrading from a REDCap version lower than 14.6.2 to version 14.6.2 or higher, the upgrade page would mistakenly note that REDCap must first be taken offline for X minutes prior to upgrading. However, this is not true but a mistake. REDCap does not need to be taken offline during this specific situation.
- Bug fix: When using Shibboleth authentication, in which the "URL for Shibboleth SP Session Initiator" is defined, the user might not get redirected back to their current page after performing a successful login.
- Bug fix: When using Twilio or Mosio, it would mistakenly not send SMS messages to U.S. phone numbers with certain newer area codes, including 787 and 939. This bug was supposedly fixed in REDCap 14.0.33 LTS and 14.4.1 Standard Release, but mistakenly it was not. (Ticket #234300b)
- Bug fix: When using surveys with enhanced radios/checkboxes together with LH orientation and an RTL language for Multi-Language Management, the standard radios/checkboxes would mistakenly be visible, and the order of the enhanced radios was not following proper RTL alignment.
- Bug fix: When viewing a survey page with date or datetime fields, in which the "Size of survey text" setting is "Large" or "Very large", the values inside the date/datetime fields might appear truncated/cut off on the page. Note: This does not affect the actual value from being saved. (Ticket #239174)
- Version 14.6.7(released on 2024-09-17)
- Critical security fix: A Remote Code Execution vulnerability was found in which a malicious user who is logged in could potentially exploit it by manipulating an HTTP request to a specific External Module Framework endpoint. If successfully exploited, this could allow the attacker to remotely execute arbitrary code on the REDCap server. This vulnerability exists in REDCap 11.0.0 and higher.
- Critical security fix: A Remote Code Execution vulnerability was found in which a malicious user who is logged in could potentially exploit it by manipulating an HTTP request to the Data Import Tool page while uploading a specially-crafted CDISC ODM XML file. If successfully exploited, this could allow the attacker to remotely execute arbitrary code on the REDCap server. This vulnerability exists in REDCap 6.12.0 and higher.
- Major security fix: A Cross-Site Request Forgery (CSRF) Bypass vulnerability was found in which a malicious user could potentially exploit it by manipulating an HTTP request to any URL in the system by tricking an authenticated user to click a specially-crafted link that could bypass the CSRF check and submit information (including changing REDCap system configuration values) on behalf of the user or admin. This vulnerability exists in REDCap 13.4.0 and higher.
- Major security fix: A Local File Inclusion (LFI) vulnerability was discovered in which a malicious user could potentially exploit it by setting the path of the hook function file on the General Configuration page to a value containing specific characters in order to bypass the check that ensures that the file path points to a PHP file. The user must have "Modify system configuration pages" administrator privileges in order to exploit this. This bug affects all known REDCap versions.

- Major security fix: A Stored XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way that can be exploited on the following pages: Alerts & Notifications, Stats & Charts, and the main REDCap Home Page. This vulnerability can only be exploited by authenticated users. Bug exists in all REDCap versions.
- Medium security fix: A Blind SQL Injection vulnerability was found on certain Clinical Data Mart (CDM) related pages, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way. The user must have "Access to all projects and data with maximum user privileges" administrator privileges in order to exploit this. This bug affects all known REDCap versions.
- Medium security fix: A Blind SQL Injection vulnerability was found on several Control Center pages, in which a malicious user who has co-opted a REDCap admin account could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way. The user must have "Modify system configuration pages" administrator privileges in order to exploit this. This bug affects all known REDCap versions.
- Medium security fix: A Blind SQL Injection vulnerability was found on the Edit Project Settings page, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way. The user must have "Access to all projects and data with maximum user privileges" administrator privileges in order to exploit this. This bug affects all known REDCap versions.
- Medium security fix: A Blind SQL Injection vulnerability was found on the Online Designer page, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way. The user must be logged in to REDCap in order to exploit this. This bug affects all known REDCap versions.
- Medium security fix: A Blind SQL Injection vulnerability was found on the Send-It upload page, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way. The user must be logged in to REDCap in order to exploit this. This bug affects all known REDCap versions.

Version 14.6.6

- Improvement: Enhancement to the information provided for the existing EHR access status and auto-login indicators in the CDIS panel of REDCap projects.
  - EHR Access Status: Detailed information about the user's current EHR access is now available when clicking on the EHR access indicator within the CDIS panel. Additionally, this information is also displayed on the Project Home page of CDIS projects.
  - Auto-login Indicator: Clicking on the auto-login indicator in the CDIS panel now provides users with additional details about how the auto-login feature works, including the process of mapping REDCap and EHR accounts during the "Launch from EHR" process.
- Improvement: The field validation type is now displayed below each Text field in the Online Designer (similar to how action tags are displayed for each field).
- Major bug fix: In rare cases where radio field choices are being piped on a form or survey, the page might mistakenly never fully load due to a JavaScript error.
- Bug fix: Mapped fields in projects marked as both CDP and CDM were not displaying correctly in the CDIS Mapping Helper tool.
- Bug fix: Some text inside red boxes throughout REDCap would mistakenly appear in a much lighter red color than intended.
- Bug fix: When reactivating all deactivated alerts on the Alerts & Notifications page, the page would mistakenly be blank, which could be confusing. Bug emerged in the previous version. (Ticket #239346)
- Bug fix: When users are deleting multiple fields in the Online Designer, in some rare cases a race condition might occur that scrambles the field order and results in fields being suddenly in the wrong location.
- Bug fix: When using the MyCap "App Design" page, a JavaScript error would occur when clicking the "Publish" button. This issue prevents a success message box from appearing on the page.

Version 14.6.5

- Improvement: On the External Modules page in the Control Center, a new warning will be displayed when REDCap detects potentially incompatible Composer packages (i.e., third-party libraries) used inside the code of individual External Modules that may cause REDCap to crash unexpectedly. This warning will provide a list of

which EMs might not be compatible with other EMs installed in the system, and provides information that can be given to the EM's creator to resolve these potential compatibility issues.

- Improvement: When exporting the Project XML file for a project that has alerts, there is now a new checkbox "Leave Alerts enabled (unless disabled)" on the Other Functionality page below the "Alerts & Notifications" checkbox. Going forward, all alerts in the Project XML file will be disabled by default unless the user checks the new checkbox to keep them enabled. In previous versions, alerts in the Project XML file would import into the new project as is (i.e., if enabled, it would stay enabled, and if disabled, it would stay disabled). This new option gives users more control over the default state of alerts in the newly created project. (Ticket #238810)
- Major bug fix: When the e-Consent Framework has been set up but then later disabled for a given survey, a PDF Snapshot would mistakenly still get saved to the File Repository and/or specified File Upload field whenever a participant completes the survey. (Ticket #239030)
- Change: When deleting a data quality rule when the Data Resolution Workflow feature is enabled in a project, the rule deletion dialog will now display a red warning to the user to inform them that deleting the rule will also delete any data queries (open or closed) that are currently associated with that data quality rule. (Ticket #219303)
- Bug fix: MyCap participants would mistakenly not receive any push notifications upon a user (e.g., study coordinator) sending them an announcement via the MyCap messaging interface in the project.
- Bug fix: Radio fields with the action tags READONLY and DEFAULT or SETVALUE would mistakenly not pipe correctly on the page.
- Bug fix: Some unwanted text would mistakenly be displayed at the bottom of the Edit Project Settings page. (Ticket #238981)
- Bug fix: When opening the "Edit Branching Logic" dialog via the Quick Modify Fields popup on the Online Designer, the branching logic text box in the dialog would mistakenly retain the previous value entered by the user while on that same current page. The text box's value should be cleared out each time the dialog is opened. (Ticket #238833)
- Bug fix: When performing a data import on the Data Import Tool page, in some rare situations, the import process might mistakenly fail due to a fatal PHP error when using PHP 8. (Ticket #238912)
- Bug fix: When using "OpenID Connect" or "OpenID Connect & Table-based" authentication, and a user logs out of REDCap and then later logs back in again, the login process might mistakenly fail silently when re-logging again. (Ticket #237124)
- Bug fix: When using Multi-Language Management in a project with MyCap enabled, the language ISO codes displayed for MyCap in the "Add New Language" dialog on the MLM setup page were incorrect for many of the languages listed. Those ISO codes have been corrected.
- Bug fix: When viewing a report that has report logic that includes checkbox fields that reference Missing Data Codes (e.g., [my_checkbox(NA)] = "1"), the report might mistakenly not return items/data that should be returned, specifically when displaying data for repeating instruments.

Version 14.6.4

- Change/improvements: The following web accessibility improvements were added to the REDCap Home Page: 1) Fixed headings so that it starts with h1 tag, 2) Moved navigation section outside of main section, 3) Added "skip to main content" link (press the Tab key to reveal the link), and 4) Fixed headings within Messenger (i.e. proper h tag level for Notifications and Conversations in Messenger) on Home page.
- Various changes and improvements to the External Module Framework, including 1) Added built-in Twig support via module framework version 16, and 2) Expanded $module->getChoiceLabels() to support true/false & yes/no fields.
- Bug fix: Alerts with conditional logic containing datediff() with "today" or "now" as a parameter might mistakenly get triggered multiple times by the cron job, thus resulting in duplicate alerts being sent. This behavior appears to be sporadic and occurs very seldom for most installations. (Ticket #237341)
- Bug fix: Horizontally-aligned enhanced radios/checkboxes on surveys that do not have a question number column would mistakenly not be spaced out consistently between each choice on a given horizontal line. Note: This fix is slightly different from a similar one from last week, which did not get completely fixed.
- Bug fix: If a user has received a confirmation link via email for registering a new email address with their REDCap account, and then the REDCap server is upgraded to a new REDCap version after the email is received, the link in the email would mistakenly redirect to the wrong place in the new version, thus preventing the user from being able to complete the email registration process. (Ticket #238619)
- Bug fix: If an auto-incremented primary key (i.e., "pk_id") has been added to all tables that do not have one (via the instructions at the bottom of the Control Center page), then the Copy Report functionality would mistakenly fail on the "My Reports & Exports" page. Bug emerged in REDCap 14.6.2 (Standard).

- Bug fix: In certain specific situations, logged events related to clicking Project Bookmarks might mistakenly be displayed on the Logging page when filtering by a specific record in the project. (Ticket #238547)
- Bug fix: In some cases when inline PDFs are attached to Descriptive fields, and a user downloads the PDF of the instrument, if the iMagick PHP extension is installed on the web server, the first page of the inline PDF might mistakenly get truncated in the resulting REDCap-generated PDF of the instrument.
- Bug fix: In some cases when inline PDFs are used as consent forms in the e-Consent Framework, and a user downloads the PDF of the instrument, if the iMagick PHP extension is installed on the web server, there would mistakenly be a blank page following the inline PDFs in the resulting REDCap-generated PDF of the instrument. (Ticket #237921)
- Bug fix: Several missing LOINC codes were added to the CDIS mapping features. Additionally, several Clinical Notes types were missing and not mappable, specifically pathology study, diagnostic imaging study, and laboratory report.
- Bug fix: The CSV file download option for the Choices Editor inside the Edit Field dialog for multiple choice fields in the Online Designer would mistakenly not do anything. (Ticket #238818)
- Bug fix: When a Data Entry Trigger is triggered on a data entry form for a record in a Data Access Group, the unique DAG name would mistakenly not get sent in the request to the Data Entry Trigger URL. Note: This issue does not occur on survey pages, and it also does not occur on data entry forms when a record is being assigned to a DAG while also being created there on the form. (Ticket #238727)
- Bug fix: When comparing two records in the Data Comparison Tool, the coded values of multiple choice fields would be mistakenly wrapped in escaped HTML italic tags, which would cause the tags to be visible (rather than interpreted) on the page. Bug emerged in REDCap 14.0.14 LTS and 14.2.1 Standard. (Ticket #238437)
- Bug fix: When copying a project via the "Copy the Project" page for a project that contains a repeating survey with a repeating Automated Survey Invitation, the ASI's recurrence settings (e.g., "How many times to send it") would mistakenly not get copied into the new project. Bug emerged in REDCap 12.5.0. (Ticket #238218)
- Bug fix: When downloading a PDF of "All forms/surveys with saved data" or "All forms/surveys with saved data (compact)" when some instruments contain embedded fields, some of the embedded fields might mistakenly not get converted into data values or underscores (if they have no value) in the resulting PDF. (Ticket #238683)
- Bug fix: When modifying a PDF Snapshot, some of the snapshot settings (specifically the checkbox options) might mistakenly not get saved successfully after being changed, and no error would be displayed to notify the user that their desired settings were not saved. This issue only affects web servers running PHP 7.3 or 7.4. (Ticket #236067)
- Bug fix: When participants are taking a survey that contains fields with the @HIDDEN-SURVEY action tag, in which the participant is using a non-standard web browser, the fields might mistakenly be displayed instead of hidden on the survey page. (Ticket #238129)
- Bug fix: When selecting instruments for the scope of a PDF Snapshot, the "Update" and "Cancel" buttons may disappear when scrolling downward when many instruments exist in the box, thus possibly causing confusion with regard to how to save one's selected instruments. To fix this, the buttons now float at the top of the box regardless of scrolling. (Ticket #238698)
- Bug fix: When the Confirmation Email option has been enabled, specifically with the "Include PDF of completed survey as attachment" checkbox checked, for a survey that has the e-Consent Framework enabled, the PDF attached to the email received by the participant would mistakenly contain the record name of the participant's record in the filename of the PDF. The record name should not be included in the PDF filename for PDFs received by participants. (Ticket #223899)
- Bug fix: When the Top Usage Report page displays a row that is a "Project" type, the project link displayed in that row would mistakenly be an invalid URL if the project title ends with text enclosed in parentheses. (Ticket #238523)
- Bug fix: When using Clinical Data Pull for CDIS, in the "launch from EHR" context of a CDIS project, events were not logged properly when a patient was added to a project. This improper logging prevented the record list cache in REDCap from rebuilding correctly, leading to issues when saving records in projects with auto-incrementing record IDs. (Ticket #234550)
- Bug fix: When using certain screen readers, such as JAWS, the individual options of drop-down fields might mistakenly not be able to be read by the screen reader. (Ticket #237629)

Version 14.6.3

- Improvement: Slight change in the Database Query Tool's "show more" link's behavior to improve performance after being clicked on a page with large column values.
- Change: After completing a survey, the "Close survey" button is now displayed below the Survey Completion Text so that it is no longer the first thing that participants see on the page.

- Change: Background Data Imports would automatically be halted if they took more than 24 hours to complete. This limit has been increased to 48 hours to allow some very large imports more time to import all their data.
- Bug fix: Deleting fields via the Online Designer for projects with several hundred fields might cause the page to hang for unacceptable amounts of time.
- Bug fix: HTML "abbr" tags were mistakenly disallowed as an allowed tag that users can use in field labels, survey instructions, and other user input. Bug emerged in REDCap 14.5.4 Standard and 14.5.5 LTS.
- Bug fix: Horizontally-aligned enhanced radios/checkboxes on surveys that do not have a question number column would mistakenly not be spaced out properly with some space between each horizontal choice.
- Bug fix: If a Notes field has both the RICHTEXT and READONLY action tag at the same time, the "Source code" button in the toolbar of the rich text editor would still be clickable and could be used to modify the field's value, which should not be allowed in this situation. (Ticket #237348b)
- Bug fix: If editing a matrix of fields, in which one of the fields has its variable name changed, that field's branching logic would mistakenly be erased when saving the changes to the matrix. (Ticket #236685)
- Bug fix: Some CDIS-related text on the Edit Project Settings page was mistakenly not translatable via language INI files. (Ticket #238036)
- Bug fix: Some EM Framework related language text that stems from translated INI language files might mistakenly not appear as translated on the page in certain places. (Ticket #238038)
- Bug fix: The Upgrade page's link to the REDCap ChangeLog on the REDCap Community website was outdated. (Ticket #237664)
- Bug fix: When attempting to upload the Survey Queue via a CSV file when using certain browsers, such as Firefox, the upload process might mistakenly fail with an unknown error. (Ticket #233684)
- Bug fix: When executing Data Quality rules in certain browsers and operating systems (e.g., Firefox on Linux), the "export
  - view" links to export and view the DQ results might mistakenly not be visible on the page.
- Bug fix: When using Multi-Language Management while the Secondary Unique Field is enabled, the duplicate value message might not be translated via MLM when the secondary unique check is triggered by pre-filling a field from a URL parameter. (Ticket #237182)
- Bug fix: When using the EHR Launch for Clinical Data Pull in CDIS, there could be possible compatibility issues, resulting in an HTTP 401 error, when using certain external authentication methods. (Ticket #237765)
- Various changes to the External Module Framework, including: 1) Added the $module->getDataClassical() method, 2) Updated the $module->createProject() function to select the smallest data & log tables for new projects, and 3) External Module "every page" hooks no longer execute by default on authenticated pages when users are not logged in. Modules can allow them to execute in this case going forward by setting enable-every-page-hooks-on-system-pages to true in config.json.

Version 14.6.2

- New feature: Clinical Data Pull Dashboard - New admin-only page that appears on the left-hand menu in CDP projects. Key features:
  - Queueing and Fetching: The dashboard outlines the cron job processes for queueing records based on specific criteria and fetching queued data for caching and further review.
  - Manual Queueing: Users have the ability to manually mark non-queueable records as QUEUED, forcing their data to be fetched during the next data fetching cycle.
  - Cached Data Page: A dedicated "Cached" page allows users to view and decrypt detailed information for each record and field, including timestamps, to ensure data accuracy and timeliness.
  - Administrator Access: A link to the Dashboard is available exclusively for administrators in the "Clinical Data Interoperability Services" or "Clinical Data Pull" panels.
- Improvement/change: Optimization for the Background Data Import process for importing records faster for very large projects (e.g., >100K records). (Ticket #237549)
- Improvement: If MySQL/MariaDB clustering or replication is implemented on your REDCap database server, in which it might be required that every database table has an auto-incremented Primary Key, the Configuration Check (at the bottom of the page) will auto-generate and display all the SQL needed to add auto-incrementing Primary Keys to all REDCap database tables that currently do not have them. (Ticket #236440)
- Improvement: On the Security & Authentication page, administrators using "OpenID Connect" or "OpenID Connect & Table-based" authentication can now optionally set a custom logout URL to direct users to after logging out of the application. (Ticket #143391)
- Bug fix: A missing LOINC code was added to the CDIS mapping features.

- Bug fix: For certain MySQL/MariaDB configurations, the upgrade SQL script might mistakenly fail when upgrading from pre-14.1.1 to any post-14.1.1 version. The upgrade script has been updated for more compatibility to prevent this issue going forward.
- Bug fix: HTML "input" tags were mistakenly disallowed as an allowed tag that users can use in field labels, survey instructions, and other user input. Bug emerged in REDCap 14.5.4 Standard and 14.5.5 LTS. (Ticket #237448)
- Bug fix: If a Notes field has both the @richtext and @readonly action tag at the same time, the field would mistakenly not be displayed as a rich text editor but as a regular textarea field, which would contain visible HTML tags inside it if the field already has a value. (Ticket #237348)
- Bug fix: In the Online Designer, when editing a CALCTEXT field whose calculation contains references to fields with ":value" appended - e.g., [field:value], normal users might never be able to successfully edit the field to change its CALCTEXT syntax. Note: Administrators are able to modify the field though. This issue was caused by the [field:value] syntax, which is not necessary since fields should be referenced simply as [field] in logic and calculations. Going forward, using the [field:value] notation, which is technically not incorrect, will no longer cause the Edit Field popup to hang when saving a field in the Online Designer. (Ticket #236945)
- Bug fix: Some PHP 8 specific errors might occur on the MLM setup page in projects that do not have MyCap enabled.
- Bug fix: When deleting an entire record via the Bulk Record Delete feature in a project where the "Require a reason when making changes to existing records" setting is enabled, an error would always be returned saying "Reason for change was not provided" instead of deleting the record. That should not occur except when doing a partial delete of records. (Ticket #237499)
- Bug fix: When using LDAP authentication with PHP 8, an LDAP user that logs in with an incorrect password might mistakenly result in a fatal PHP error during the login process. (Ticket #237359)
- Bug fix: When using both MyCap and Multi-Language Management in a project, the MLM setup page (inside the "MyCap help" popup and "add/edit language" popup) was mistakenly not displaying the list of available language codes currently supported by the MyCap mobile app.
- Bug fix: When using both MyCap and Multi-Language Management in a project, the MLM setup page would mistakenly display a "MyCap" tab under the User Interface section. That tab was not meant to be added since it cannot be used yet.
- Bug fix: When using the EHR Launch for Clinical Data Pull in CDIS, there could be possible compatibility issues when using Internet Explorer as the default browser in the EHR.
- Bug fix: When using the EHR Launch for Clinical Data Pull in CDIS, there could be possible compatibility issues when using certain external authentication methods.
- Bug fix: When using the READONLY action tag on the Secondary Unique Field on a survey that has the SUF prefilled via URL variables, the field would mistakenly be editable and not read-only. Note: This occurs only on the SUF when viewed specifically in survey mode, and only when prefilling is being performed. (Ticket #237623)

Version 14.6.1

- Major security fix: A Stored XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into any user input that is then output on a page in REDCap (e.g., field labels, survey instructions, data displayed on a report). This vulnerability can be exploited by authenticated users and also by survey participants entering data. Bug exists in all REDCap versions.
- Medium security fix: A Reflected XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into a specific API parameter's value that is used in a specific API method. This vulnerability can be exploited only by users with a valid API token. Bug exists in all REDCap versions.
- Major bug fix: If Multi-Language Management is enabled on a project, the datepicker for date/datetime fields would mistakenly appear in right-to-left mode all the time. Bug emerged in 14.5.4 Standard and 14.5.5 LTS.
- Bug fix: In some situations, the record name and "upcoming calendar events" button that appears above the table on the Record Home Page might mistakenly appear too narrow on the page. (Ticket #236702)
- Bug fix: In very specific situations, a user exporting the data for a report might mistakenly fail with a PHP error when using PHP 8. (Ticket #236555)
- Bug fix: When a user is performing a "partial delete" of instrument data on the Bulk Record Delete page, in which randomization is enabled in the project and the record being partially deleted has already been randomized, if the randomization field or strata fields exist on the instrument being deleted, those values would mistakenly get deleted. Once a record has been randomized, it should not be possible to delete values for the randomization field

and strata fields. In this situation going forward, the instrument data will not be deleted for the selected records on the Bulk Record Delete page.
- Bug fix: When upgrading from a version of REDCap below 14.5.0, in some specific situations the upgrade might fail due to an SQL error. (Ticket #236740)
- Bug fix: When using Clinical Data Pull for CDIS, the auto-adjudication interface would be incorrectly displayed on the record dashboard after disabling CDP in the project or at the system level.
- Bug fix: When using MyCap together with Multi-Language Management, the "Notification Settings" tab was mistakenly not appearing in the correct location on the MyCap setup page.
- Bug fix: When using MyCap together with Multi-Language Management, the "version" attribute and list of languages in the MyCap config JSON (that is consumed by the MyCap mobile app) was mistakenly not getting updated automatically whenever a user clicks on the "Save" button on the MLM setup page.

Version 14.6.0

- New feature: Bulk Record Delete
  - Users may use the Bulk Record Delete page to delete multiple records from the project or alternatively to delete data for multiple instruments across multiple records. To perform either of those two actions, a user must have "Delete Records" privileges, and for the partial delete option, a user must additionally have "View & Edit" instrument-level privileges for the instrument that they select.
  - The Bulk Record Delete page can be accessed from two different locations in a project: 1) On the Other Functionality page, and 2) On the Record Status Dashboard via the new Multi-Record Actions dropdown.
  - If the project has the GDPR-related feature "Delete a record's logging activity when deleting the record?" enabled in the project, the user will be prompted with a checkbox to additionally delete the record's logged events on the Logging page when deleting entire records.
  - If the "Require reason for change" option is enabled in the project, users will be prompted to enter a reason that will get logged when performing a partial delete of one or more instruments.
  - The Bulk Record Delete feature can be disabled for the whole system on the Modules/Services Configuration page in the Control Center, if desired. By default, this feature will be enabled.
  - Note: If a user is performing a partial delete, the instrument's data cannot be deleted in the following situations: 1) If the form is locked, 2) If no users are allowed to modify survey responses (via the system-level setting) and the data of the selected instrument(s) is a survey response, 3) If the user does not have form-level rights to modify survey responses for the selected instrument(s) and the data of the selected instrument(s) is a completed survey response, or 4) If the selected instrument(s) is a completed e-Consent response and e-Consent responses are not allowed to be edited per the survey's e-Consent settings.
- Major bug fix: When using the Multi-language Management feature in the MyCap mobile app, some important task settings information might mistakenly not get pulled from the REDCap server into the MyCap app on the mobile device, thus resulting in text from the fallback language being used in the mobile app instead of the desired MLM language.
- Bug fix: On the Configuration Check page, the External Service Check for Google reCAPTCHA API services might mistakenly return a false positive saying that the service can't be reached when it actually can.
- Bug fix: The Quick-Modify Fields feature would not allow users to copy branching logic when it was just added (or would allow users to copy it when it was just removed).
- Bug fix: When using Form Display Logic, in which the "Hide forms that are disabled" checkbox is checked but no conditions are defined in the Form Display Logic setup dialog, the Record Home Page would mistakenly not display any instruments in the table for any records. (Ticket #236229)
- Bug fix: When using Multi-Language Management, the "Save & Return Later" page might mistakenly not display the desired language for the participant. (Ticket #236220)
- Bug fix: When using a rich text consent form with the e-Consent Framework, the consent form text might all be mistakenly bolded when being viewed on the survey page. (Ticket #236369)

Version 14.5.43

- Major security fix: A Stored XSS (Cross-site Scripting) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom HTML and JavaScript in a specially crafted way into any user input that is then output on a page in REDCap (e.g., field labels, survey instructions, data displayed on a report), specifically targeting the "href" attribute of a hyperlink. This vulnerability can be exploited by authenticated users and also by survey participants entering data. Bug exists in all REDCap versions.

- Major security fix: An SQL Injection vulnerability was found on the User Rights page, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request in a specially-crafted way when adding new User Roles. This can only be exploited by authenticated users. Bug exists in REDCap 10.3.3 and higher.

Version 14.5.42

- Bug fix: A missing LOINC code was added to the CDIS mapping features.
- Bug fix: If survey invitations are scheduled via the Participant List, in which one or more invitation reminders are scheduled to be sent, the reminders might mistakenly not get automatically removed from the Survey Invitation Log after the survey had been completed. This would cause the reminders to be sent to the participant even after they had completed the survey. (Ticket #203090b)
- Bug fix: The column for the "Lock/Unlock Entire Records (record level)" user privilege was mistakenly missing from the user rights/roles table on the User Rights page in a project.
- Bug fix: The drag and drop implementation to move fields in the Online Designer prevented other drag and drop operations on the same page from working.
- Bug fix: The special function isnumber() would mistakenly return an incorrect response for numbers that begin with zero and a decimal (e.g., 0.2) and also returned an incorrect response for integers with leading zeros that being with plus or minus (e.g., +02), which are expected to return false from the function. Bug emerged in REDCap 14.5.37 LTS and 15.0.3 Standard. (Ticket #248368)
- Bug fix: Two-factor verification would mistakenly be successful for users who enter a 6-digit 2FA code with unnecessary leading zeros. (Ticket #248167)
- Bug fix: When using the EHR launch process in the Clinical Data Pull feature of CDIS, if a user authenticates for the first time, any initial action they attempt (e.g., adding or removing a project) would fail silently.
- Various CDIS-related bug fixes:
  - The Mapping Helper was mistakenly not logging the MRN alongside the FHIR ID of the patient.
  - SMART on FHIR authorization fix: Resolved an issue where the dropdown menu for selecting a FHIR system was not functioning when multiple FHIR systems were available.
  - EHR Launch bug fix: Fixed a bug where, in certain circumstances, the EHR user was not correctly extracted and displayed in the navbar next to the REDCap user.