

# REDCap Flex Upgrade Changelog – January 2024 Upgrade (v. 13.7.19 → v. 14.0.8)

## Version 14.0.8

### CHANGES IN THIS VERSION:

- **Major bug fix:** When a user views a report and modifies the "report\_id" parameter in the URL while on the report's "Stats & Charts" page or when editing the report, in which the report\_id is changed to the report\_id of a report in another project to which the user does not have access, the user would mistakenly be able to view the report name and the number of results returned from that report from the other project. Note: No identifying data or record names from the other project are able to be accessed using these methods; only the report name and the total count of results returned from the report can be extracted.
- Bug fix: When viewing the Record Status Dashboard when Data Access Groups exist in a project, in certain situations the RSD page might load a bit slowly due to an excessive amount of SQL queries being run. This was fixed in the previous version, but it only covered specific situations. (Ticket #221998b)
- Bug fix: When using Clinical Data Mart in CDIS, there were issues in the list of mappable items within CDM projects, in which the following condition types were not mappable as generic entries: encounter-diagnosis-list, problem-genomics-list, problem-medical-history-list, and problem-reason-for-visit-list.
- Bug fix: If a user was given "Edit Access" rights to a specific report, but they have been given "Add/Edit/Organize Reports" user privileges for the project, if they append "&adedit=1" to the URL when viewing the report, it might appear that they can edit the report. However, clicking the "Save Report" button on the page would actually do nothing and would forever say "Working". So while they aren't able to bypass any report access privileges, it could be confusing because it appears as though maybe they could. (Ticket #222150)
- Bug fix: If a project is being moved back to Production status from Analysis/Cleanup status, the process of moving it back to Production would mistakenly not clear out the "inactive\_time" timestamp in the backend database for the project. This issue has no impact on the application. (Ticket #222175)
- Bug fix: When using Multi-Language Management, instruments with matrix fields would fail to load due to a JavaScript error. This bug was introduced in the previous version. (Ticket #222211)
- Bug fix: When using Clinical Data Pull in CDIS, some CDP projects with the auto-adjudication feature enabled might display the adjudication count as a negative number. (Ticket #134564)
- Bug fix: When using Clinical Data Pull in CDIS, an out-of-memory error could occur when handling large volumes of data being pulled from the EHR.
- Bug fix: When erasing all data in a project or deleting all records when moving a project to production, the process might take a disproportionately large amount of time to complete (or it

might get stuck) if the project contains a large amount of data points (i.e., several million or more rows). The process now deletes data from the redcap\_dataX table in smaller batches rather than attempting to delete all rows with a single query.

- Bug fix: When saving the Survey Login settings in the Online Designer, the confirmation dialog would mistakenly not be displayed due to a JavaScript error.
- Bug fix: When erasing all data in a project or deleting all records when moving a project to production, the process might mistakenly not delete the 'Survey Login Success' and 'Survey Login Failure' logged events in the project if the Survey Login feature is being utilized. (Ticket #222429)
- Bug fix: When using Clinical Data Mart in CDIS, the CDM data fetching process might fail when using specific versions of MySQL/MariaDB, specifically MySQL versions prior to 8.0 and MariaDB versions prior to 10.2.1. (Ticket #219308)

## Version 14.0.7

### CHANGES IN THIS VERSION:

- **Major security fix:** Several Reflected XSS (Cross-site Scripting) and Stored XSS vulnerabilities were discovered in which a malicious user could potentially exploit them by inserting custom JavaScript in a specially crafted way into specific URLs or POST parameters in several places, including the Data Quality page, Custom Application Links, Report Folders, and other places. The user must be authenticated into REDCap in order to exploit these in a project. Bugs exist in all REDCap versions for the past 10 years.
- **Major security fix:** An SQL Injection vulnerability was found on a Calendar-related page, some MyCap-related pages, the Define My Events page, the Online Designer, the Record Home Page, and other places, 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. In order to exploit these, the user must be logged in as a REDCap user. Bugs exist in all REDCap versions for the past 10 years.
- Bug fix: The upgrade process might unexpectedly stop due to an SQL error in the upgrade SQL script when upgrading to or higher than REDCap 14.0.1 in some cases.
- Bug fix: In certain situations when using Clinical Data Pull for CDIS, the process might stop with a fatal PHP error for some PHP version.
- Bug fix: When using Multi-Language Management, in which the highlighting feature for untranslated items is enabled, some items would mistakenly be highlighted on the page that should not be highlighted. (Ticket #221418)
- Bug fix: If a record contains multiple consecutive spaces in its record name, some things might not display correctly on certain pages when viewing the record, such as the floating table of repeating instances when clicking on the "stack" status icon for a repeating instrument on the Record Home Page or Record Status Dashboard.
- Bug fix: When using Clinical Data Pull in CDIS, conditions or medications were not shown in the CDP adjudication dialog unless a specific status was specified.
- Bug fix: During the cache file creation process for Rapid Retrieval, concurrent write attempts could lead to PHP errors and potentially high CPU usage in some specific cases. (Ticket #221459)

- Bug fix: The “Create new API token for user” dialog might mistakenly display the option “External Modules API”, which is not a published feature yet. (Ticket #221904)
- Bug fix: When using Clinical Data Mart in CDIS, the CDM auto-fetch feature was not properly scheduling a fetch process.
- Bug fix: When viewing the Record Status Dashboard when Data Access Groups exist in a project, in certain situations the RSD page might load a bit slowly due to an excessive amount of SQL queries being run. (Ticket #221998)
- Bug fix: When using Multi-Language Management, the MLM setup page might not sort the choices of multiple choice fields in the correct order as seen in the Codebook and Online Designer. (Ticket #221888)
- Bug fix: Usernames with apostrophes could not be added to a project or assigned to a user role through the user interface on the User Rights page. (Ticket #221933)
- Bug fix: When using the Survey Queue, in which survey participants are added initially via the Participant List, if neither the Designated Email field nor the Participant Identifier is used in the project, and the Survey Response Status is "Anonymous\*", the Survey Queue's "Get link to my survey queue" popup would mistakenly display the participant's email address, thus breaking the participant's anonymity in the project. Going forward, it will no longer display the participant's email address in that popup in this situation. (Ticket #221804)
- Bug fix: When using the Background Data Import process, in which an error occurs, if a user goes to download the CSV file containing the list of errors for the import batch, the first letter of the error message in a given row might be missing.

## Version 14.0.6

### CHANGES IN THIS VERSION:

- Bug fix: When using CDIS in certain contexts where data is being pulled for specific research studies, the FHIR ID of a research study might not be found.
- Bug fix: When importing alerts via a CSV file, if the file contains some mangled characters due to incorrect encoding, the file might fail to upload and would mistakenly not produce any error message.
- Bug fix: When using CDIS, issues might occur when fetching “conditions” data having a status other than "active". Additionally, new FHIR resources were inadvertently excluded from mapping in CDP projects. This includes the following mappable resources: encounter, coverage, procedure, device, and all conditions (including their status).
- Bug fix: If using file-based storage for Rapid Retrieval, in which an alternative storage directory has been defined, in certain cases many of the cached files in the alternative directory would mistakenly not get deleted after the 5-day expiration time.
- Bug fix: The REDCap::evaluateLogic() developer method's documentation mistakenly did not include information about the current\_context\_instrument parameter, which is required for the correct evaluation of logic that contains certain Smart Variables. This parameter should be provided to the method if the logic is being evaluated within the context of a specific instrument (e.g., while on a survey page or data entry form). This parameter has been added to the method's documentation. (Ticket #220861)
- Bug fix: When enabling Twilio in a project, it is possible in certain cases to enter the same Twilio phone number (if it is a U.S. number) for more than one project. This could be done by entering the phone number in one project with the U.S. country code, and then entering it in another project without the U.S. country code. (Ticket #221468)

- **Bug fix:** When using the functions `day()`, `month()`, or `year()`, more than once inside a calculation, it might not parse the calc correctly, thus possibly returning incorrect results. (Ticket #221544)

## Version 14.0.5

### CHANGES IN THIS VERSION:

- New LTS branch based off of REDCap 14.0.4 (Standard)

## Version 14.0.4

### CHANGES IN THIS VERSION:

- **Medium security fix:** The AWS SDK PHP third-party library contained a medium security vulnerability that would mistakenly allow an attacker to possibly perform URI path traversal. The library was updated to the latest version.
- **Major bug fix:** The API Delete Users method was mistakenly not checking if a user had User Rights privileges in the project in addition to API Import/Update privileges in order to successfully make a call to the API method.
- **Change/improvement:** When using the eConsent Framework on a survey, the certification page now says "Working..." until the inline PDF finally loads on the page. This will reduce confusion for participants in case the PDF takes an abnormal time to load. (Ticket #221228)
- **Bug fix:** When using Multi-language Management, the "Initialize a new language from available system languages" option was mistakenly checked (while also disabled) even when no system languages are available, leading to a JavaScript error when "Continue" is clicked. (Ticket #221273)
- **Bug fix:** In specific situations where multiple File Upload fields are piped onto a page in a specific way, it may cause a JavaScript error that prevents the instrument from loading. (Ticket #221225)
- **Bug fix:** If Form Display Logic or Survey Queue Logic references a specific repeating instance of a field, specifically instance "1", "first-instance", or "last-instance", when the field exists on a repeating event that currently contains no data for a given record, the logic might mistakenly not evaluate correctly. (Ticket #221229)
- **Bug fix:** Direct links to the FAQ in certain places throughout REDCap were not working. They would merely take the user to the top of the Help & FAQ page instead of to a specific item. Bug emerged in REDCap 13.4.0. (Ticket #221329)

## Version 14.0.3

### CHANGES IN THIS VERSION:

- **Improvement:** The Unicode Transformation process (found via the Configuration Check page if your installation was installed prior to REDCap 8.5.0) now contains a "Step 2 Alternative" method, which utilizes a project-by-project Unicode Transformation process using a cron job. Previous versions required that SQL be run over all projects at the same time (which might take quite a while) while REDCap was offline.

- If your REDCap installation was installed roughly 8 years ago or if it contains more than 1000 projects, it is recommended that you use Step 2 Alternative to minimize server downtime during the Unicode Transformation process.
- After performing Step 1, Step 2 Alternative will provide some SQL to enable the cron job. Once initiated, you may refresh the page to view its project-by-project progress until all steps appear green on the page after it has finished.
- Note: Step 1 will still need to be run in real time while REDCap is offline. Thus downtime is unavoidable for Step 1. But the benefit of Step 2 Alternative is that it allows one to complete the remaining steps of the Unicode Transformation process without any downtime.
- **Improvement:** If a report has been set as "public", a link icon will appear next to the report title on the left-hand project menu. If a user clicks the link icon, the public report will open in a new tab.
- **Improvement:** If a project dashboard has been set as "public", a link icon will appear next to the project dashboard title on the left-hand project menu. If a user clicks the link icon, the public project dashboard will open in a new tab.
- **Improvement:** When in a project context when the Read Replica feature is enabled, the Read Replica's utilization will now be maximized by referencing the last time a "write event" occurred in the project's Logging (such as data being saved or the project being modified in some way) when being compared with the replica's lag time (rather than merely using a static maximum lag time of 3 seconds as the cutoff). This means that, for example, if a project has not had any logged "write events" in the past 5 minutes, the replica will be used on specific pages in that project so long as the replica's lag time (i.e., behind the primary database) is less than 5 minutes. Whereas in previous versions, the replica would only be utilized if the replica's lag time was 3 seconds or less. This increases the utilization of the replica, thus improving overall system performance.
- **Major bug fix:** When checkbox field values are being imported during a data import (via the API or Data Import Tool), in which some calculated fields in the project reference the checkbox field in their calculations, the calc fields might mistakenly not get updated during the import process. (Ticket #221111)
- **Change:** Some help text was added to the Form Display Logic and Survey Queue instructions to inform users that their conditional logic will be evaluated at the record level and not within the context of an event or a repeating instance, which means that it is not possible to use relative instance or relative event Smart Variables - i.e., those with the name 'current', 'next', or 'previous', such as [next-instance] or [previous-event-name].
- **Bug fix:** When piping a field on the same instrument on which it is located, the piping might mistakenly not work in a repeating instrument or repeating event context. (Ticket #220610)
- **Bug fix:** When calling the Rename Record API method, the API request would mistakenly get logged as "Switch DAG (API)" when it should instead be logged as "Update record (API)".
- **Various bug fixes and improvements to the External Module Framework:**
  - Added the isModulePage() and isREDCapPage() module methods (courtesy of Andrew Poppe)
  - Added the dashboard-list module setting type (courtesy of Andrew Poppe)
  - Added the visibility-filter option for the dashboard-list and form-list module setting types (courtesy of Andrew Poppe)
  - Removed survey-list module setting type in favor of form-list with a visibility-filter option
  - Misc. security scan script improvements

- Bug fix: In rare cases, a database query run on the Participant List page might cause the page to load very slowly or even time out. (Ticket #211469)
- Bug fix: When renaming a record in a multi-arm longitudinal project, in which the new record name already exists in another arm but in another case (e.g., renaming a record to "aa3" in arm 1 when there is already a record "AA3" in arm 2), issues can occur when trying to access the record in either arm in the user interface afterward. When this occurs going forward, the new record name will be forced to be the same case as the existing record in the other arm. (Ticket #217809)
- Bug fix: When uploading a data import file via the Background Data Import, in which the process somehow gets stuck during the initialization phase, the upload would mistakenly appear with a "queued" status. Going forward, if any imports are stuck in the initialization phase for more than one hour, they will be automatically cancelled by the system. (Ticket #220714)
- Bug fix: When uploading a data import file via the Background Data Import, in which the process somehow gets stuck processing for a long period of time, the upload would mistakenly appear with a "processing" status forever. Going forward, if any imports are stuck in the processing phase for more than one day, they will be automatically cancelled by the system.
- Bug fix: When performing an API Export Records call with type=eav, in some rare cases the record ID field might mistakenly have duplicate rows for some records in the exported data. (Ticket #220860)
- Bug fix: In the Online Designer, when a field has a section header immediately above it, and the field is then moved to be directly above that section header, the field would mistakenly revert back to its original position.
- Bug fix: When entering data on a data entry form or survey while using a mobile device, in which a text field on the page has field validation and the user has entered a value that will throw a field validation error, if they click the "Add signature" link or "Upload file" link for a signature or file upload field, respectively, while their cursor is still in the text field, then they would get stuck in an infinite loop of popups and not be able to continue data entry on the page. (Ticket #219569)
- Change: The length of time in which the record list cache will be automatically reset has been increased from 1 week to 2 weeks. This was done because the record list cache has seen years of stability and can now be trusted to be accurate for longer periods of time. This change will reduce how often the cache will need to be rebuilt for an active project, which should improve overall system performance.
- Bug fix: A warning might mistakenly be encountered during the extraction of an identifier from a FHIR request within a CDIS project. The adjustment involves ensuring that the returned identifier is a single value rather than an array.
- Bug fix: In some cases when exporting the Project XML file for a project, the process might mistakenly crash with a fatal PHP error when using PHP 8. (Ticket #221097)
- Bug fix: When using Google Cloud Storage for file storage in the system, and the "Organize the stored files by REDCap project ID?" setting is enabled, uploading a file on the main Send-It page (i.e., via the tab from the My Projects page) might cause a fatal PHP error when using PHP 8. (Ticket #221098)
- Bug fix: Using the function isblankormissingcode() in branching logic would not always return the correct result if the field used in the function is numeric. (Ticket #218984)
- Bug fix: If fields are embedded into the field label of a File Upload field or Signature field, the "Upload file"/"Add signature" dialog would mistakenly display the embedded fields as editable, whereas it should instead display them as read-only since their values cannot be modified there inside the dialog. (Ticket #221137)

- Bug fix: The “Insert a dynamic variable” feature on the Email Users page in the Control Center would mistakenly never work, in which the variables would not get successfully replaced in the email body when sending the emails.

## Version 14.0.2

### CHANGES IN THIS VERSION:

- **Improvement:** The Rapid Retrieval caching feature is now utilized for data exports and also for the API methods Export Records and Export Report, whereas in previous versions Rapid Retrieval was only utilized on report pages and the record status dashboard page.
- **Improvement:** If the Read Replica feature is enabled, all API export methods will now utilize the Read Replica, whereas in previous versions the only API methods that utilized the Read Replica were the Export Records, Export Report, and Export Logging methods.
- **Improvement/change:** For projects with the "Delete a record's logging activity when deleting the record?" setting enabled on the Edit Project Settings page, a request to the API Delete Record method may now include the parameter `delete_logging=0` if the user wants to prevent the record's logging activity from being deleted when the record is deleted. If the setting is enabled in the project, then the default value will be '1' for `delete_logging` (to maintain the existing behavior in previous versions), and if the project-level setting is not enabled, the default value will be '0'. If the project-level setting has been enabled, this API parameter must be provided with a value of '0' in order to prevent the record's logging activity from being deleted when the record is deleted (Ticket #96300)
- **Change:** The PID number for a project is now displayed on the My Projects page for all user types, whereas in previous versions it was only displayed for admins (users with some kind of Control Center access). (Ticket #220689)
- **Major bug fix:** When exporting a report (including using the API Report Export method) in CSV, XML, or JSON format, in which the report does NOT have "order by" fields, the resulting exported data might mistakenly contain duplicate rows, some of which might appear empty while others have the expected data for the given record/event. (Ticket #219392b)
- Bug fix: The EHR patient portal for CDIS might mistakenly fail to accurately display whether a patient was already associated with a given project. Bug emerged in REDCap 14.0.0.
- Bug fix: When importing data (via API or Data Import Tool), in which the record name of the record being imported already exists in the project but has a different case (e.g., "101A" vs "101a"), it might cause extra logged events to be added during the data import process, even when no data is being modified. This issue does not seem to affect existing data in any negative way. (Ticket #219755)
- Bug fix: On the Codebook page, collapsing of some tables on the page would not work in certain browsers.
- Bug fix: When using CDP (Clinical Data Pull), data was mistakenly not being automatically fetched from the EHR and imported into a given CDP project as part of the CPD cron job. The issue was observed specifically in scenarios where certain records lacked a specified Medical Record Number (MRN).
- Bug fix: When sending invitations through the Participant List via the Compose Survey Invitations dialog, in some rare cases the action of scheduling/sending the invitations might result in a fatal PHP error for PHP 8. (Ticket #220549)
- Bug fix: In specific cases, the [@richtext](#) action tag might cause the Notes field's rich text editor to be read-only when it should be editable on the page.

- Bug fix: In a MyCap-enabled project, the MyCap participant install dates and baseline dates would mistakenly get carried over into copied projects and projects created via Project XML upload.
- Bug fix: When using CDIS, a patient's preferred language might not be correctly extracted from a patient's FHIR payload. (Ticket #219743)
- Various fixes and changes to the External Module Framework, including the following: 1) The `getProjectsWithModuleEnabled()` method begins included modules enabled via the "Enable module on all projects by default" setting as of framework version 15, and 2) Fixed copy/paste/cut issue in rich text editor.
- Bug fix: When using Shibboleth authentication, the REDCap redirect URL was mistakenly not URL-encoded in the Shibboleth handler address, which might cause the user not to get redirected back to the correct place after returning from a successful Shibboleth login. (Ticket #220564)
- Bug fix: When upgrading REDCap more than once in a single day, the "redcap\_history\_version" database table would mistakenly only list the last upgrade of the day. (Ticket #220627)
- Bug fix: When clicking the increase/decrease font-size button at the top of survey pages, the speaker icons used for text-to-speech functionality would mistakenly not change size.
- Bug fix: The Scheduling page would mistakenly never display the record drop-down list. Bug was originally fixed in version 13.8.3 but then reappeared again in 14.0.0. (Ticket #210446b)
- Bug fix: When importing data via the Data Import Tool's background data import, if the CSV file contains any File Upload fields, even if they are empty columns, it would mistakenly display an error saying that some variable names in the file were invalid, which is confusing. File Upload fields will now be ignored for this field pre-check since ultimately they are ignored during the data import process since files cannot be uploaded using this method. (Ticket #218575)
- Bug fix: Some example R code in the API Playground was syntactically incorrect and would cause errors if it was run in R as is. Bug emerged in 13.7.24 LTS and 14.0.0 Standard Release. (Ticket #219535b)

## Version 14.0.1

### CHANGES IN THIS VERSION:

- **Improvement:** Improved user interface elements on the Codebook page. A new instrument table lists instrument names and also event designations, if longitudinal. The instrument and event tables are now collapsible. Additionally, the tables denote if an instrument is a repeating instrument or is designated to a repeating event, and the event table denotes if an event is a repeating event. All tables on the page are now collapsed by default. (Ticket #220221)
- **Improvement:** For Descriptive Text fields on the Codebook page, the attachment's filename and its display format are now listed on the page if it has an attachment, and the media URL and its display format are now listed on the page if it has a media URL. (Ticket #220204)
- **Major bug fix:** When exporting a report (including using the API Report Export method) in CSV, XML, or JSON format, in which the report is ordered by a field other than the record name and the total size of the exported data is fairly large (containing several hundred or thousand records), the resulting exported data might mistakenly be missing many rows of data. Bug emerged in the previous version. (Ticket #220275)
- Bug fix: The administrator's browser time that is displayed at the bottom of the main Control Center page was not formatted correctly. (Ticket #219917)



- Bug fix: If a proxy is specified on the General Configuration page in the Control Center, the username-password authentication for HTTP requests made during CDIS remote calls to the EHR system might not always work successfully under certain conditions. (Ticket #219039c)
- Bug fix: The EHR Launch in CDIS might mistakenly fail due to a fatal PHP namespace error.
- Various fixes and updates to the External Module Framework.
- Bug fix: The query cache efficiency check on the Configuration Check page might mistakenly display a false positive saying that the MySQL query cache is not efficient when actually it is. (Ticket #220049)
- Bug fix: When a project has been deleted, some orphaned rows for that project might still exist in certain database tables. (Ticket #220047)
- Bug fix: If a survey does not have survey instruction text, and the participant navigates back to page 1 after being on page 2 of the survey, the page would mistakenly display the "View survey instructions" link under the survey title.
- Bug fix: When using the Survey Login feature in a longitudinal project, in which a field referenced on the survey login page exists on a different event as the survey currently being taken, the logged event's description of the successful/failed login on the Logging page would mistakenly have the wrong event for the context of the survey login. (Ticket #220174)
- Bug fix: When using Azure AD authentication with Endpoint V2, the setting "AD attribute to use for REDCap username" was mistakenly not using all of the options listed in the drop-down but would only use the "userPrincipalName" option, if selected. Now all options can be used in Endpoint V2. (Ticket #134789b)
- Bug fix: When clicking the "Download metadata only (XML)" button on the Project Setup->Other Functionality page, it mistakenly would not log the file download. It now logs the download event as "Download REDCap project XML file (metadata only)" on the Logging page. (Ticket #220203)
- Bug fix: Referencing a field from another instrument or another event inside the function month(), day(), or year() for a calculated field would mistakenly cause a calculation error to occur on the page. (Ticket #220405)
- Bug fix: In some situations when copying a project, in which the records are also copied, the new project would appear not to have any records until the administrator clicked the "Clear all record and page caches" button on the Other Functionality page.

## Version 14.0.0

### CHANGES IN THIS VERSION:

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

- REDCap now implements an automatic, transparent form of page-level caching (known as “Rapid Retrieval”) to help speed up certain pages that are known to be slow. Currently, Rapid Retrieval operates only on reports and on the Record Status Dashboard page. When a cache is being utilized, a note will appear at the top of the page that says “Page speed was boosted using Rapid Retrieval”. The Rapid Retrieval cache can be cleared for an entire project by an administrator using the “Clear the Record List Cache” button on the Project Setup->Other Functionality page, in which the button text now says “Clear all record & page caches.”
- On the Modules/Services Configuration page in the Control Center, the Rapid Retrieval functionality can be disabled for the whole system, if desired. It has two options: File-based storage (default, recommended) and Database storage. If set to 'File-based storage', the Rapid Retrieval feature will store all cached files in REDCap's 'temp' folder by default. If set to 'Database storage', they will be stored in the redcap\_cache database table. When using File-based storage, there is an additional setting named “Alternative directory to store cached files” that is completely optional, in which you may set an alternate location on your web server for storing the cached files, whether for security or performance related reasons.
- Suggestion: The File-based storage method is recommended in most cases, such as on very active servers, because the Database storage method can tend to cause the database to be too busy, in which it may bog down the server and/or cause the MySQL binary log to grow too rapidly. You may try both options to see if one performs better overall. There is no harm in changing this setting at any time while the system is running.
- Additional notes: When using File-based storage, the cached files are completely encrypted (at rest) on the web server, and the files are quickly removed by a cron job once they have been invalidated and can no longer be utilized. This form of active pruning keeps the cached files from taking up too much space on the web server.
- **New feature: Additional “redcap\_data” tables**
  - To help improve long-term server performance over time through horizontal scaling, REDCap now makes use of 3 new “redcap\_data” tables named redcap\_data2, redcap\_data3, and redcap\_data4. As new projects are created, they will be assigned to one of the four data tables, which will be the single place where that project’s data is stored. Utilizing more “data” tables will allow REDCap to maintain its speed and remain performant over time. The addition of these new tables is a completely automatic and transparent change that users will likely never realize or need to know about. However, administrators should be aware of it, especially in regard to the creation of Dynamic SQL fields (see below), which will be affected by this change. Note: No existing projects will be impacted by this change in v14.0.0; thus, it will only affect new projects created after upgrading to v14.0.0. Also, a project’s data table can always be obtained on the Edit Project Settings page after selecting a project, in which the table name will be listed at the top of that page.
  - **New [data-table] Smart Variable** - Since a project’s data can be stored in any of the 4 data tables, writing queries for Dynamic SQL fields can be tricky. On the Add/Edit Field dialog on the Online Designer, it will note the current project’s data table after selecting “Dynamic SQL Field” in the dialog. However, instead of using the literal data table name in their SQL query, admins may instead use [data-table], which will be replaced with the current table’s data table name. If you wish to obtain the data table name for another project, append a colon and the PID of the other project - e.g., [data-table:7345],

in which the PID of the other project is “7345”. It is advised that going forward, administrators should utilize the [data-table] Smart Variable for Dynamic SQL fields rather than using the literal data table name.

- **New developer method REDCap::getDataTable(\$pid)** - New REDCap class method for plugins/modules/hooks that will return the “redcap\_dataX” database table name for a specified project by providing its project\_id. If \$project\_id is null or not provided, it will return "redcap\_data" by default. It is recommended that if any External Module developers have any EMs that reference the “redcap\_data” explicitly in their EM code, they should replace it similar to how it is done in the code below:

```
$data_table = method_exists('\REDCap', 'getDataTable') ? \REDCap::getDataTable($project_id) : "redcap_data";  
$sql = "select * from $data_table where project_id = $project_id";
```
- **New “Move Project Data” page**
  - This page allows REDCap administrators to move the data stored in a given REDCap project to another redcap\_dataX table in the database in order to [hopefully] improve the general performance of the project. The performance improvement will depend greatly on the size and structure of the project and will also depend on many things in the overall system, such as the current size of the redcap\_data table and the power of the database server.
  - Note: The data transfer process on this page will perform multiple checks to ensure that all data gets moved successfully, and if anything goes wrong, it will automatically roll back all changes.
  - How to find this page - The “Edit Project Settings” page in the Control Center contains a link to the “Move Project Data” page.
- **New feature: “Read Replica” Server**
  - To help offset server load if the REDCap system has been experiencing routine slowness, REDCap can connect to a read-only, secondary database server that uses MySQL/MariaDB replication to stay in sync with REDCap's primary database server.
  - The Read Replica server will be utilized only for read-only operations in the following places in REDCap: viewing reports, exporting data (including API exports), viewing record status dashboards, viewing and exporting the project logging page (including API logging exports), using the data search tool, viewing the scheduling page, executing data quality rules, viewing project dashboards, and viewing the Control Center's System Statistics and User Activity Log pages.
  - The effort of enabling the Read Replica functionality is very minimal once a replica server has been created and is successfully replicating from the REDCap primary database server. Most of the work will be simply setting up the replica server. Instructions for setting up the Read Replica can be found near the top of the General Configuration page in the Control Center.
  - NOTE: The Read Replica is only recommended for use if you have been experiencing performance issues with your REDCap server, such as a routine or off-and-on slowness. Before enabling the Read Replica feature, it is advised that you explore other ways to improve database performance first, such as adding more RAM and CPUs to your database server to see if that provides some improvement. If those things do not help, then using the Read Replica might be a good option.
- **Improvement:** The @HIDECHOICE action tag now supports piping into its argument - e.g., @HIDECHOICE="[my\_checkbox:checked:value]".
- **Improvement:** The bottom of the main Control Center page now displays the current time of the user's browser and the current time of the REDCap server (with its timezone).

- **Major bug fix:** When exporting a report (including using the API Report Export method) in CSV, XML, or JSON format, in which the report is ordered by a field other than the record name and the total size of the exported data is fairly large (containing several hundred or thousand records), the resulting exported data might mistakenly contain duplicate rows, some of which might appear empty while others have the expected data for the given record/event. (Ticket #219392)
- Bug fix: For certain REDCap installations, the events on the Define My Events page would not be ordered correctly. (Ticket #219188)
- Bug fix: When opening certain dialog popups throughout the application, in which the dialog contains a lot of text, the page might mistakenly auto-scroll downward unexpectedly, thus causing the user to have to scroll back up in order to read the dialog contents.
- Bug fix: If a proxy is specified on the General Configuration page in the Control Center, it was mistakenly not using username-password authentication for HTTP requests made during CDIS remote calls to the EHR system. (Ticket #219039b)
- Change: When viewing the "View or Edit Schedule" tab on the Scheduling page when more than 10K drop-down options would be displayed in the already-scheduled drop-down list of records, in which the drop-down will display at all, the text on the page has been modified for better clarity since it was confusing regarding how to view an already-scheduled record in this situation.
- Bug fix: Issues related to copy, paste, and cut in the TinyMCE 6 rich text editor. (Ticket #219212, #219274, #218550, #219286)
- Bug fix: The "Upcoming Scheduled Survey Invitations" popup on the Record Home Page might not display all the upcoming invitations scheduled in the next 7 days but might mistakenly omit some. (Ticket #218769)
- Several fixes and improvements for the External Modules Framework, including 1) Added the report-list and survey-list EM setting types, and 2) Resolved a queryLogs() bug when referencing username in WHERE clauses (Ticket #217622).
- Change: When downloading the Survey Queue settings via CSV file, the CSV filename now contains the project title and timestamp of the download.
- Bug fix: When downloading the Survey Queue settings via CSV file, the download action was mistakenly not being logged.
- Bug fix: When uploading the Survey Queue settings via CSV file, the upload action was mistakenly being logged multiple times.
- Bug fix: Some example R code in the API Playground was syntactically incorrect and would cause errors if it was run in R as is. (Ticket #219535)
- Bug fix: When a datediff() function has a literal date value (e.g., "22-07-2023") for the first or second parameter in the function, in which the date value is in DMY or MDY date format, the datediff might mistakenly not perform the calculation correctly in some instances - most specifically server-side processes, such as auto-calculations, data imports, and Data Quality rule H. (Ticket #219662)
- Bug fix: When using the RICHTEXT action tag for a field on a data entry form that is disabled/readonly (due to limited user rights or when viewing a survey response that is not in edit mode), the field's rich text editor would mistakenly not appear disabled/readonly and would allow users to type and modify its content, even though the page is not able to be submitted. (Ticket #219212b)
- Bug fix: In some rare cases when using nested IF action tags for a field in which spaces or line breaks appear in specific places in the IF's logic, the IF action tag might mistakenly not evaluate correctly.

- Bug fix: Form Display Logic might mistakenly not be evaluated correctly on the Record Home Page when a record has not been created yet but is in the process of being created. (Ticket #219883)

## Version 13.11.4

### CHANGES IN THIS VERSION:

- **Major bug fix:** When a user is uploading a project's Survey Queue settings via a CSV file in the Online Designer, in certain situations, the process **might mistakenly erase the Survey Queue settings of \*ALL PROJECTS\* in the entire system.** This bug affects only Standard Releases 13.11.0, 13.11.1, 13.11.2, and 13.11.3. If you are on an affected version, it is advised that you upgrade ASAP. Additionally, this fix in 13.11.4 has also been backported to all affected versions so as to prevent further damage. (Ticket #219088)

## Version 13.11.3

### CHANGES IN THIS VERSION:

- **Improvement:** New MLM-related Action Tags - If using Multi-Language Management, the LANGUAGE-SET action tag can now be selectively applied to data entry forms via LANGUAGE-SET-FORM) or surveys via LANGUAGE-SET-SURVEY.
- **Improvement:** When using MyCap in a longitudinal project, a more streamlined process is provided for helping users add new active tasks and designate them for specific events in the project. This process is now much less confusing and less disjointed than in previous versions.
- **Improvement:** A new parameter was added to the method REDCap::storeFile() to allow one to set the filename of the file being stored. In previous versions, the filename would be extracted from the file path itself. This new parameter is useful to assign a filename to files that have a temporary filename, such as when resulting from a file upload.
- Bug fix: If the Mosio SMS Services have been enabled in a project, the configuration step for Mosio on the Project Setup page would mistakenly not be displayed if the system-level Twilio feature (rather than the system-level Mosio feature) had been left disabled on the Modules/Services Configuration page in the Control Center.
- Bug fix: The Data Viewing Rights & Data Export Rights might not be set correctly for user roles after adding a new instrument to a project while in production. When adding a new instrument, the rights would always get set to "No access" for that instrument for all roles, despite the fact that the setting "Default instrument-level user access..." on the User Settings page in the Control Center might be set otherwise. Note: This does not affect individual users' rights but only user roles. (Ticket #218708)
- Bug fix: When a Table-based user navigates into a project, after which the Password Expire Warning popup is displayed if their password is about to expire soon, and then the user clicks the "Change my password" button, they are mistakenly taken to a blank page. This issue only occurs if the Password Expire Warning popup is displayed while they are inside a project (as opposed to on the My Projects page). (Ticket #218606)
- Bug fix: If using Multi-Language Management, under certain circumstances the language preference of a logged-in user was mistakenly overwritten by a browser cookie. (Ticket #218766)
- Minor changes and improvements to the External Module Framework.

- Bug fix: If a proxy is specified on the General Configuration page in the Control Center, it was mistakenly not being utilized for HTTP requests made during CDIS remote calls to the EHR system. (Ticket #219039)
- Bug fix: When merging two records while using Double Data Entry (DDE), the merging process might mistakenly replace specific characters with HTML entities in the values of the third record that was created. (Ticket #218547)
- Bug fix: In some situations, the AWS SDK might mistakenly fail when attempting to store or retrieve files from S3. The AWS SDK for PHP has been updated to the latest version in order to resolve this.
- Bug fix: When piping a value onto a form/survey from outside the current context, in certain situations the piped value might mistakenly get wrapped in invisible HTML "span" tags when output onto the page, which should only occur when the field being piped exists on the same page. (Ticket #219031)
- Bug fix: When using a designated email field (whether project-level or survey-level), there might be some inconsistency with regard to saving the email field if the field exists on multiple events or on a repeating instrument/event, in which REDCap attempts to keep all values the same for the field in all places in the record. One of the worst side effects is that it might mistakenly create extra repeating instances on a record when the email field exists on a repeating instrument when multiple repeating instances already exist for another instrument on the same record. (Ticket #217938)
- Bug fix: When performing a data import on the Data Import Tool page when using PHP 8, a fatal PHP error might mistakenly occur. (Ticket #212225b)

## Version 13.11.2

### CHANGES IN THIS VERSION:

- **Improvement:** When using the "Erase all data" feature on the Other Functionality page, it now lists the total number of records in the dialog so that the user is aware. (Ticket #218329)
- **Change:** The "variable auto-naming" feature found in the "Add New Field" popup in the Online Designer can now be disabled/hidden for all users by toggling a new system-level setting. The User Settings page in the Control Center now contains a setting where this feature can be 1) Disabled for all users, 2) Enabled for all users (default), or 3) Enabled for administrators only. (Ticket #215153)
- Bug fix: When using Multi-Language Management, the project-level overrides of some admin settings would mistakenly get ignored.
- Change/bug fix: In a MyCap-enabled project, the MyCap Invitation Text has been updated for projects that are not yet converted to the new MyCap mobile app. This text change is to reduce confusion regarding the transition from the MyCap Classic app to the new app.
- Bug fix: When using Multi-Language Management, the comments at the top of CSV export files from the MLM page mistakenly had a comma hard-coded as the CSV delimiter, which could lead to the file not being importable when a delimiter other than comma was chosen and depending on the type of software used to edit the file.
- Bug fix: The "Map of Users" page in the Control Center might mistakenly not call the "redcap\_control\_center" hook under specific circumstances. (Ticket #218502)

- **Change:** When copying a project on the Copy Project page, if the project being copied contains one or more Dynamic SQL fields, a notice will be displayed near the bottom of that page to inform the user that they may want to consider if the SQL query for the field(s) needs to be modified in order to work correctly in the new project.
- **Bug fix:** External Module language files were mistakenly being overwritten by the `Language::getLanguage()` method, leading to the loss of module-specific language keys. This problem manifested when the `tt` function, used for internationalization within EMs, was called, particularly affecting pages that utilized the `redcap_control_center` hook. (Ticket #218492)
- **Bug fix:** The DbHealthCheck cron job might mistakenly fail when the web server is using PHP 8. Bug emerged in REDCap 13.11.0.

## Version 13.11.1

### CHANGES IN THIS VERSION:

- **Major bug fix:** When upgrading to REDCap 13.11.0, the upgrade SQL script might mistakenly fail on certain versions of MySQL (but not MariaDB), thus preventing some folks from successfully upgrading to v13.11.0.
- **Bug fix:** Two-factor verification would mistakenly fail for users when the 6-digit 2FA code has a leading zero. (Ticket #218277)
- **Bug fix:** When using Clinical Data Pull, the "View" link to view the adjudication popup would mistakenly not appear at the top of the data entry page after having opened the page the first time. (Ticket #218182)

## Version 13.11.0

### CHANGES IN THIS VERSION:

- **New feature: New FHIR resources** are available for Clinical Data Interoperability Services (CDIS) for extracting new types of data from a patient's chart. (Note: If using Epic, your institution will first need to upgrade to version 3 of the REDCap app in the Epic App Orchard/Vendor Services in order to use these new resources.) Below is a list of the new resources available:
  - Appointment Endpoints - Appointments, Scheduled Surgeries
  - Condition Endpoints (Epic Only) - Dental Finding, Genomics, Infection, Medical History, Reason for Visit
  - Additional Endpoints - Coverage, Device: Implants, Diagnosis, Procedure
- **Additional CDIS enhancements:**
  - Refactored "Mapping Helper"- The user interface has been simplified for ease of use. The workflow is adjusted so that data for all resources can now be fetched in one action, reducing the number of clicks needed.
  - Clinical Data Mart - There's now an option to apply date ranges to specific resources individually, providing more granular control during data retrieval. Also, the existing background fetch feature within CDM has been extended to the "search" feature. This means when you're using the search functionality, particularly with individual MRN selections, the system can perform data fetches in the background, freeing you up to work on other tasks.
  - Clinical Data Pull - You can now map conditions to a specific clinical status. This is particularly useful for instances requiring detailed condition data.

- **New special functions for date/datetime fields:**
  - year() - Returns the year component of a date/datetime field - e.g., year([dob]).
  - month() - Returns the month component of a date/datetime field - e.g., month([visit\_datetime]).
  - day() - Returns the day component of a date/datetime field - e.g., day([visit\_date]).
- **New piping parameters for date/datetime fields:**
  - :year - Returns the year component of a date/datetime field - e.g., [dob:year].
  - :month - Returns the month component of a date/datetime field - e.g., [visit\_datetime:month].
  - :day - Returns the day component of a date/datetime field - e.g., [visit\_date:day].
- **Improvement: Survey Queue Import/Export** - Users can now export and import their Survey Queue settings via a CSV file in the Online Designer. After clicking the “Survey Queue” button on the page, it will reveal a drop-down list of options to 1) edit the SQ, 2) download the SQ as a CSV file, or 3) upload the SQ as a CSV file. This new feature will make it much easier for users to make modifications to their Survey Queue when they have many instruments and/or events that they wish to utilize in the SQ.
- **Improvement: Form Display Logic Import/Export** - Users can now export and import their Form Display Logic settings via a CSV file in the Online Designer. After clicking the “Form Display Logic” button on the page, it will reveal a drop-down list of options to 1) edit the FDL, 2) download the FDL as a CSV file, or 3) upload the FDL as a CSV file. This new feature will make it much easier for users to make modifications to their Form Display Logic when they have many instruments and/or events that they wish to utilize in the FDL.
- **Improvement:** The rich text editor has been updated to TinyMCE v6.
- **Improvement:** The "Help & FAQ" page has been updated with new content (thanks to the FAQ Committee).
- **Improvement:** If using the Mailgun Email API, an optional Base URL setting has now been added to allow institutions to specify the Base URL that should be called for the Mailgun Email API. By default, "<https://api.mailgun.net>" is used, but those in the EU region may alternatively set it as "<https://api.eu.mailgun.net>" in the Mailgun section of the General Configuration page. (Ticket #206369)
- **Improvement:** When using Multi-Language Management, it is now possible to preset the language of a survey by supplying the URL parameter "`__lang`", which must be set to a valid (active) language id (and is case-sensitive). Example: [https://redcap.vanderbilt.edu/surveys/?s=ABC123&\\_\\_lang=es](https://redcap.vanderbilt.edu/surveys/?s=ABC123&__lang=es). When used, this will override both a survey respondent's previous choice (stored in a browser cookie) as well as the language preference field. The `@LANGUAGE-FORCE` action tag will still take precedence, though. (Ticket #124976)
- **Bug fix:** When using the `@CALCDATE` action tag in which the Daylight Saving Time barrier is crossed when calculating the resulting date, in specific cases the result might mistakenly be one day off (if a date field) or one hour off (if a datetime field). Similarly, when using the `datediff()` function in which one date/datetime exists in DST while the other does not, in some cases the result might be off by one hour when using units of "h", "m", or "s". (Ticket #32022, #73668, #103913, #126830, #129720, #137174, #215534, #216566)
- **Bug fix:** Fixed an issue affecting the behavior of custom CDIS mapping in the Clinical Data Pull (CDP) mapping interface, in which custom CDIS mapping fields were incorrectly designated as 'primary,' thus preventing users from utilizing them as intended. (Ticket #217391)
- **Bug fix:** In certain situations, the cron job for the Background Data Import might fail with a fatal PHP error when using PHP 8. (Ticket #212276b)
- **Bug fix:** If a REDCap server is configured to use AAF authentication and that site has enabled the option to identify locals based on their AAF `eduPersonScopedAffiliation`, a user that should



have been identified as a local would mistakenly not be identified as such, leading to them not being automatically granted project creation/copy rights upon account creation. This bug was introduced in REDCap 13.10.4.

- Bug fix: The setting "Custom text to display at top of Project Home page" would mistakenly not display in the project if it did not contain actual text but only contained an image or an HTML "style" tag. (Ticket #217972)
- Bug fix: In certain situations, the WebDAV file storage check on the Configuration Check page might mistakenly fail with a fatal PHP error. (Ticket #217684)
- Bug fix: When attempting to save a calc or @CALCTEXT field in the Online Designer, in which the calculation contained a Smart Variable, it would prevent normal users from saving the field and would just get stuck saying "Saving...". However, administrators would be able to save the field successfully.
- Bug fix: In certain situations while on a survey page, a participant might be able to submit a survey when they should not, such as if the Save button is hidden on the survey page. (Ticket #217159)
- Bug fix: A user would be unable to close the field validation error popup (specifically in iOS or Android) when the field with the validation error is followed by a signature field. (Ticket #217572)
- Bug fix/change: When using MyCap in a project, in which the project has not been transitioned to use the new MyCap app (but instead is using the MyCap Classic app), if a user exports the project XML file to create a new project on the same server or on any server on REDCap 13.11.0, that new project will also be using the MyCap Classic app. In previous versions, the new project would always be using the new MyCap app, which could cause issues in specific situations.
- Bug fix: When exporting and importing Automated Survey Invitations using a CSV file in the Online Designer, the import process might fail with a blank error message due to an inconsistency in the CSV delimiter used in the file. (Ticket #217941)
- Bug fix: When using Multi-Language Management, the choice labels of multiple choice fields would not be piped correctly in some cases if the choice labels contain HTML. (Ticket #217955)
- Bug fix: Users would mistakenly be allowed to define Missing Data Codes where some of the codes could be duplicated in different cases (case sensitivity-wise). For example, "na" and "NA" would both be allowed as Missing Data Codes. Note: This issue cannot be fixed retroactively but will be prevented going forward when users attempt to create or modify Missing Data Codes on the Project Setup page. (Ticket #216818)

## Version 13.10.6

### CHANGES IN THIS VERSION:

- Change/improvement: The Configuration Check page now has a new MySQL 8 specific check to ensure that the "Generated Invisible Primary Keys" (GIPK) setting in MySQL has been disabled on the database server. If not, it recommends to set `sql_generate_invisible_primary_key=OFF` in the `my.cnf` (or `my.ini`) configuration file. Additionally, this check has been added to the REDCap install page in order to prevent anyone from installing REDCap with this feature enabled. If the GIPK setting is left enabled, it will forever display false positives for the "Database Structure is Incorrect" check in the Control Center when in fact there is nothing wrong with the database structure.

- Change: When using MyCap, some REDCap server configuration info is now included in the MyCap configuration JSON that gets pulled by the MyCap mobile app when refreshing the MyCap configuration on the participant's mobile device. This server info will be stored on the mobile device and used only for troubleshooting purposes when any issues occur in the mobile app.
- Bug fix: An issue may occur with a CDIS-related cron job in which certain records are not processed due to MemoryMonitor interruptions, and thus records would mistakenly not get queued for future processing to pull their clinical data from the EHR. This fix ensures that these unprocessed records are correctly queued for the next execution of the cron job, preventing data loss and ensuring more robust processing.
- Bug fix: When a user lacks the instrument-level user privilege to modify survey responses for a given instrument, then they open a data entry form that has been enabled as a survey, and before they submit the form, a survey response has already been started or completed by a participant, it would mistakenly allow the user to unwittingly overwrite the survey response when they submit the form. It now returns an error message in this specific scenario and prevents the user from making changes. (Ticket #217157)
- Bug fix: When a user is assigned to a Data Access Group and views a project's Logging page when no records exist in their DAG yet, the Logging page might crash and display an error message saying that an SQL query failed. This appears to only occur for certain versions of MySQL/MariaDB. (Ticket #217372)
- Bug fix: Certain tables, such as the Record Status Dashboard and reports, might mistakenly not display with the correct width based on the current screen size, in which the table may display its scroll bar off the right side of the page (i.e., initially not visible) instead of it being visible after the page loads.
- Bug fix: If the MyCap External Module is enabled in a project, the built-in MyCap feature would mistakenly have its "Enable" button as a clickable button on the Project Setup page. That button is now disabled/grayed out if the MyCap EM is already enabled in a project.
- Bug fix: When using CDIS, specifically Clinical Data Mart, an intermittent issue in CDM projects would occur where searches for specific Medical Record Numbers (MRNs) would occasionally return duplicate results. The fix ensures that each MRN appears only once in the search outcomes.
- Bug fix: When using Multi-Language Management, the "only one selection per column" notice on matrix fields was mistakenly not translatable via the MLM setup page. (Ticket #217480)
- Bug fix: When adding or editing a multiple choice field via the Online Designer, the text in the section "How do I manually code the choices?" mistakenly contained a line break in the text rather than actually displaying the HTML tag " " as visible in the text.
- Bug fix: When an alert is set to trigger "When conditional logic is TRUE during a data import, data entry, or as the result of time-based logic", in which a data value from a repeating instrument or repeating event is added via a data import, if the repeat instance number is "1" for the field being imported (or if the value is "new" when no repeating instances exist yet for that field), the import process might mistakenly not trigger the alert. (Ticket #214855)
- Bug fix: When a checkbox field has a multiple choice option whose raw code is the same as a missing data code in the project, the report page might mistakenly display the error "DataTables warning: table id=report\_table - Incorrect column count" when trying to view a report that contains such a checkbox. (Ticket #217249)
- Bug fix: When hovering over the "view list" link on the Alerts & Notifications page for a given alert, the popover dialog would mistakenly not be hidden again if the user moves their cursor

off of the popover. To remedy this, the user must now click the “view list” link to see the popover, after which the popover will hide if manually closed or if the user clicks on anything outside of the popover on the page.

- **Bug Fix:** When importing records that are assigned to a Data Access Group, in which records for other DAGs exist in the redcap\_data table with a blank record name (due to an older bug that caused the name to be blank), this would mistakenly prevent the data import process from importing the records. (Ticket #217724)

## Version 13.10.5

### CHANGES IN THIS VERSION:

- **Major security fix:** A Stored Cross-site Scripting (XSS) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom JavaScript in a specially crafted way into specific POST parameters of an Online Designer related URL so that the custom JavaScript could be injected into the calculations of calc fields, @CALCTEXT, and @CALCDATE fields. Thus the custom JavaScript could be executed whenever anyone opens the data entry form or survey page. This could lead to privilege escalation if a malicious user tricks an administrator into viewing the instrument, thus potentially becoming an administrator themselves and able to access all projects and data. The user must be authenticated into REDCap and must have Project Design rights in order to exploit this in a project. Bug exists in all REDCap versions for the past 10 years. Note: This bug was supposedly fixed in the previous version but mistakenly was not.
- **Medium security fix:** Malicious users might be able to bypass the "Restricted file types for uploaded files" feature (if being utilized on the REDCap server) by uploading a file with an incorrect file extension into the File Repository of a project, and then changing the file's extension using the "rename file" feature. For example, an attacker could take a file named "exploit.exe", rename it to "image.jpg" on their local device, upload the file into the File Repository, rename the file to "image.exe", and then trick another user into downloading it and executing it locally. Now, REDCap prevents users from modifying the file extension of any files uploaded into the File Repository. Note: The vulnerability does not pose a risk to the REDCap server since REDCap itself never executes any uploaded files, but this only poses a risk to users who may unwittingly download and execute the file. Also, the malicious user must have File Repository privileges inside a project in order to exploit this.
- **Minor security fix:** When using Two-Factor Authentication, in which users are logging in and entering a 6-digit one-time passcode (OTP), there was no limit placed on the number of passcode submissions that can be attempted for a given user within a specific window of time. Thus, the passcode verification process was subject to brute force hacking (so long as the attempts did not exceed the general Rate Limiter setting in REDCap). This has been changed so that the passcode verification process cannot be utilized more than 10 times per minute. If exceeded, it will now return an error.
- **Major bug fix:** When a survey participant clicks the "Save & Return Later" button on a survey, REDCap would mistakenly not always find the participant's email address (from a designated email field or from the participant list) when loading the page that displays the return code. In some cases, another participant might be sent an email containing the original participant's survey link for completing the survey. Note: Despite sending the survey link to the wrong participant, the other participant would not be able to see the original participant's responses because they do not have the Return Code. (Ticket #140765, #217097)

- **Security improvement:** If no value has been set for the system setting "Restricted file types for uploaded files" at the bottom of the Security & Authentication page, the following value will be set for that setting to prevent harmful files from being uploaded to the system: "ade, adp, apk, appx, appxbundle, bat, cab, chm, cmd, com, cpl, diagcab, diagcfg, diagpack, dll, dmg, ex, exe, hta, img, ins, iso, isp, jar, jnlp, js, jse, lib, lnk, mde, msc, msi, msix, msixbundle, msp, mst, nsh, php, pif, ps1, scr, sct, shb, sys, vb, vbe, vbs, vhd, vxd, wsc, wsf, wsh, xll".
- **Improvement:** When using the Field Bank in the Online Designer to search specifically within the NIH CDE Repository, a new checkbox option exists in the search utility called "Search NIH-Endorsed CDEs". If this search option is checked, REDCap will search only for fields that are "NIH-Endorsed" in the NIH CDE Repository. NIH-Endorsed CDEs have been reviewed and approved by an expert panel, and meet established criteria.
- **Change/improvement:** When using OpenID Connect authentication in specific situations, such as with Azure B2C, an optional "additional scope" value might need to be provided in order for authentication to function correctly. A new "Additional scope" setting has been added to the OIDC section of the Security & Authentication page for this, if needed. (Ticket #214076)
- **Bug fix:** When using Multi-Language Management, a JavaScript error might occur when piping calculated fields under specific conditions.
- **Bug fix:** When using Twilio or Mosio, it would mistakenly not send SMS messages to U.S. phone numbers with an 445 area code. (Ticket #216751)
- **Bug fix:** When using Multi-Language Management, the option to "Create from file/from scratch" would mistakenly not be available on the Control Center MLM setup page when the corresponding language creation was disabled for projects.
- **Bug fix:** The language variable "design\_1054" mistakenly existed twice in the file "English.ini".
- **Bug fix:** If the settings "Allow normal users to edit their primary email address on their Profile page?" or "Allow normal users to edit their first name and last name..." are set to "Do not allow editing", a user that knows how to make a specially-crafted POST request to a specific endpoint or knows how to manipulate the Profile page's user interface in a specific way would be able to modify their first/last name and/or email address, respectively.
- **Bug fix:** When a user imports data via the Background Data Import option, the data import would get logged under the generic user "SYSTEM" since the import is literally performed by the REDCap cron job. However, this creates ambiguity in the logging with regard to which user initiated the specific import batch. To reduce ambiguity in all future imports performed via the Background Data Import, the logging page will now list the user as "SYSTEM" appended in parentheses by the user that initiated the import - e.g., "SYSTEM (john.doe)".
- **Bug fix:** When a user imports a Project XML file that is truncated (for whatever reason) and is thus does not represent properly structured XML, in some situations REDCap might still attempt to process the XML fully without any error message, which might result in some things not getting set correctly in the resulting project, possibly unbeknownst to the user. It now attempts to do a better job of detecting if the XML is properly structured, and if not, returns an error message explaining this.
- **Bug fix:** When using "Azure AD OAuth2 & Table-based" authentication, users clicking the "Logout" link in REDCap would mistakenly not be successfully logged out of Azure AD. (Ticket #216423b)
- **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 531 and 726. (Ticket #216751b)

# Version 13.10.4

## CHANGES IN THIS VERSION:

- **Major security fix:** A Stored Cross-site Scripting (XSS) vulnerability was discovered in which a malicious user could potentially exploit it by inserting custom JavaScript in a specially crafted way into specific POST parameters of an Online Designer related URL so that the custom JavaScript could be injected into the calculations of calc fields, @CALCTEXT, and @CALCDATE fields. Thus the custom JavaScript could be executed whenever anyone opens the data entry form or survey page. This could lead to privilege escalation if a malicious user tricks an administrator into viewing the instrument, thus potentially becoming an administrator themselves and able to access all projects and data. The user must be authenticated into REDCap and must have Project Design rights in order to exploit this in a project. Bug exists in all REDCap versions for the past 10 years.
- **Medium security fix:** A user with Calendar privileges in a given project that knows how to make a specially-crafted POST request to a specific end-point might be able to edit or delete a calendar event in another project to which they do not have access.
- **Medium security fix:** A user with Data Access Group privileges in a given project that knows how to make a specially-crafted POST request to a specific end-point might be able to rename or delete a DAG in another project to which they do not have access.
- **Change/improvement:** When adding/editing a Descriptive Text field in the Online Designer, the text in the "Optional file attachment, image, audio, or video" section of the popup has been modified to instruct the user that the "Embed an external video" feature can be used for more than just videos but for websites and surveys too (i.e., the "Magic Box" feature, as some call it). The text has been changed to "Optional media to embed or attach:" and "Embed media (video, website, survey, etc.)", respectively. Other relevant text in the popup has also been modified to refer to "media" more generically rather than "video".
- **Improvements to AAF Authentication:**
  - Clearer instructions are provided to admins when setting up AAF authentication on the Security & Authentication page.
  - AAF authentication now allows administrators to define multiple eduScopeTarget attributes that identify an authenticating user as a 'local', thus allowing sites to enable users from multiple institutions to create projects.
  - AAF authentication now allows administrators to control which users are added to the Email Users page. Previously this was either Yes (all users) or No (no users). Now, the options are All Users, None, and Locals Only.
  - When a user logs in for the first time via AAF, the Organization Name of their Identity Provider is now added to the Institution ID field in their User Profile. This change is not retroactive; existing users will not have their organization added to their profile automatically.
  - When an AAF user logs in for the first time, it now logs the event.
- **Bug fix:** When using Multi-Language Management, REDCap's auto-logout feature would mistakenly not work on the MLM setup page in some circumstances. (Ticket #216234)
- **Bug fix:** When using MyCap, the "No Fields" error might mistakenly not be displayed in the Online Designer if non-MyCap fields are added at the end of an instrument.
- Various updates and fixes for the External Module Framework, including 1) Avoided additional eval false positives during scans, 2) Added scan support for local paths to zip files, and 3) Improved constructor scan output.

- Bug fix: When printing an instrument via the option "Download this survey with saved data (via browser's Save as PDF)", a vertical line/shadow would mistakenly appear on the left side of the resulting PDF.
- Bug fix: When using Multi-Language Management, a specific warning was mistakenly not translatable via the MLM setup page.
- Bug fix: When using "OpenID Connect & Table-based" authentication, users clicking the "Log-out" link in REDCap would mistakenly not be successfully logged out of OIDC. (Ticket #216423)
- Bug fix: When using Multi-Language Management, "style" HTML tags that span over multiple lines would mistakenly not work as expected when MLM is active.

## Version 13.10.3

### CHANGES IN THIS VERSION:

- **Improvement:** When setting up recurring Alerts & Notifications, users can now set the repeating interval value as a number with a decimal (in previous versions, the value could only be an integer). This will allow users to approximate the interval of a monthly recurring alert as 30.44 days since it is currently not possible for recurring alerts to be scheduled on exactly the same day and time each month. To help users, a note has been added in the repeating survey section of the alert setup dialog to inform them how to approximate a month as 30.44 days. (Ticket #215860)
- **Major bug fix:** A user with "Alerts & Notifications" privileges in a given project that knows how to make a specially-crafted POST request to a specific end-point used for "Alerts & Notifications" functionality might be able to delete any general uploaded file that belongs to the project, whether it be an attachment uploaded via the rich text editor, a file uploaded to a File Upload field, a Descriptive Text field attachment etc. This user could potentially delete the stored edoc file for any of those such places in the project. However, it is important to note that the user can only delete files within their own project to which they have access. They cannot delete files in other projects to which they do not have access.
- **Major bug fix:** If survey invitations have been scheduled manually (i.e., not via ASI) with one or more reminders, the unsent/scheduled reminders would mistakenly not be automatically removed whenever the participant completes the survey. (Ticket #203090)
- Change: In Multi-Language Management, the "Default" language term has been renamed to "Base Language" on the MLM setup page and in various documentation for improved clarity regarding the purpose and function of the Base Language in MLM.
- Change: When using MyCap in a project, the instructional text in the individual "Invite Participant" popup has been modified slightly to cater better to whether the project has been transitioned to use the new MyCap mobile app or not.
- Bug fix: The end-points used for deleting instruments and fields in a project were mistakenly using a GET request (rather than a POST request), which could make it easier for a user to get tricked into unwittingly deleting an instrument or field if a malicious user sent them a specially-crafted link to click. Such a situation would not cause any permanent damage (e.g. no data would ever be deleted), and it could be easily fixed by re-adding the instrument/field back.
- Bug fix: When using a CDIS service (CDM or CDP) to pull data from an EHR, when dealing with date values used in the FHIR requests to the EHR system, some dates might mistakenly be converted to the current timezone. This has been fixed to ensure that the date conversion only occurs in the response received from the FHIR system.

- Bug fix: When using the Protected Email Mode feature, in which an alert is set up with an attachment file and the alert is set not to send immediately but at some later time, after the alert is triggered and the email is sent, when the recipient views the email on the Protected Email Mode page, the attachment would mistakenly not be downloadable on the page but would display an error when attempting to be download it. (Ticket #212760)
- Bug fix: The hook functions "redcap\_survey\_page\_top" and "redcap\_survey\_page" might mistakenly be provided with an incorrect DAG group\_id value for records that have not yet been created, such as when viewing the first page of a public survey. In these cases, it would provide the DAG group\_id of record "1" in the project if there exists a record named "1" when instead the group\_id should be NULL. (Ticket #215884)
- Bug fix: The Unicode Transformation process might mistakenly not convert data in some database tables that have a "project\_id" column in which the project\_id value in the table is NULL. (Ticket #215615)
- Bug fix: Several PHP 8 compatibility issues when using certain MyCap pages/processes.
- Bug fix: When uploading a CSV file using the Background Data Import, in which the record ID field is included in the data file but many rows in the file have no value provided for the record ID field (i.e., it's blank), the import process could mistakenly go into an infinite loop until the script times out, which might cause the process to get stuck in "Initialization" status and thus can't be canceled or removed.
- Bug fix: In specific cases where the REDCap::saveData() method is being called, including data imports from the new MyCap mobile app, the process might mistakenly crash when using PHP 8. (Ticket #215928)
- Change: A note was added to the Smart Variable documentation, specifically for the charts, to denote that when using multiple fields in the chart, the data used in the chart will be naturally grouped from the same event and/or repeating instance. For example, if you're plotting age vs weight in a scatter plot in a longitudinal project, it will only create points in the plot where both the age value and weight value exist on the same event. If one or both values are missing from a given event in a record, then no point can be plotted for that given record.
- Bug fix: The @NOW-SERVER action tag would mistakenly not set the correct value for many time-validated field types, such as a Text field with "time\_hh\_mm\_ss" validation, whenever an instrument/survey is loaded. Instead, it might set the value as the user/participant's local time (according to their browser). (Ticket #216135)
- Bug fix: When using Multi-Language Management, for Yes/No and True/False fields, "No"/"False" was mistakenly shown instead of their associated translation in some places (e.g., Codebook). (Ticket #216265)
- Bug fix: Several different features in REDCap, in which an AJAX call returns JSON-encoded data, might get misinterpreted and thus would fail because the request failed to have the "Content-Type: application/json" header set. This would only occur for certain web server configurations. (Ticket #214401)

## Version 13.10.2

### CHANGES IN THIS VERSION:

- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered in which a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript in a specially crafted way into the URL on the Data Import Tool page. *This bug only affects REDCap 13.8.0 and higher.*

- **Improvement:** The Logic Editor is now utilized when an administrator is adding/editing the SQL query for a Dynamic SQL Field.
- **Change/improvement:** A new check was added to the Configuration Check page that will alert the administrator if the PHP.INI configuration file used by the REDCap cron job has a timezone setting that differs from the timezone setting in the main PHP.INI file used by the web interface (but only if more than one PHP.INI is utilized). If the timezone settings differ, it warns that one must be changed so that they are the same, otherwise the cron job may not run correctly.
- **Bug fix:** When renaming a record, the record name would mistakenly not get renamed on the Email Logging page. This would not cause any issues other than the Email Logging saying that an email belongs to the wrong record. (Ticket #215100)
- **Bug fix:** The Unicode Transformation process might mistakenly not display correct information regarding whether or not some specific steps in the process need to be completed.
- **Bug fix:** The "field suggest" feature when using the Logic Editor was mistakenly no longer appearing as of REDCap 13.7.13 LTS and 13.9.3 Standard Release. (Ticket #215285)
- **Bug fix:** When using the Clinical Data Mart design checker's "fixDesign" process, a fatal PHP error might occur in certain situations.
- **Bug fix:** Some project pages might fail with a fatal PHP error when using PHP 8 due to the calling of an undefined PHP constant in the External Module Framework. (Ticket #215348)
- **Bug fix:** When transitioning a MyCap-enabled project to use the new MyCap mobile app, some survey-related settings might mistakenly not be updated during the process (assuming they were being used to store the participant QR code and/or direct link), specifically the survey confirmation email body and the ASI email body.
- **Bug fix:** When using Multi-Language Management, the "Access Denied!" a message that appears on data entry forms when a user has no access was mistakenly not a translatable element in MLM. (Ticket #215504)
- **Bug fix:** In a MyCap-enabled project, slider labels (displayed above or next to the slider) were not displaying correctly in the MyCap config JSON and thus might cause issues in the MyCap mobile app.
- **Bug fix:** When using MyCap in a project while publishing a new MyCap app version, in which a task exists with non-fixable errors, the success message popup will display a warning along with a success message that some tasks were not published due to errors.
- **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. (Ticket #213770)
- **Bug fix:** When using CDIS, the SMART on FHIR authentication process was causing incorrect scope levels to be applied, specifically impacting Cerner users. The issue prevented the proper assignment of the "user" level during authentication, thus potentially leading to authorization errors.
- **Bug fix:** The auto-fill form/survey feature for administrators might mistakenly fail for most/all time validated fields. (Ticket #215684)
- **Bug fix:** When an [X-event-name] Smart Variable is prepended to a field variable (especially in combination with an [X-instance] Smart Variable) in logic, calculations, or piping, it might cause the evaluation of the logic/calc/piping not to be performed successfully. For example, for [previous-event-name][field], the direct previous event might be used when instead the previous designated event for that field's instrument should be used. (Ticket #214317, #213503)



- Bug fix: If using an HTML "style" tag inside user-defined text (e.g., field label, survey instructions), the CSS styles inside the tags might mistakenly not work on the page if line breaks or carriage returns occur anywhere inside the opening and closing style tag. (Ticket #215693)

## Version 13.10.1

### CHANGES IN THIS VERSION:

- **Improvement:** The MyCap Help document has been updated, and a new Transition Guide has been added to help inform users regarding the process of transitioning to the new MyCap mobile app from MyCap Classic (the guide is linked in the popup that notifies users about transitioning). Additionally, a new PDF displaying a list of all MyCap app features has been linked in several places where MyCap documentation is located, in which the PDF compares the features of the new MyCap app with the previous MyCap Classic app.
- **Major bug fix:** When using randomization while in production status, if a user is uploading a new allocation table to be appended to the existing production allocation table, in which the development allocation table happens to exactly match all the production allocations after the allocation upload has occurred, all the production allocations would mistakenly be erased, which would also remove the "randomized" status for any already randomized records. This is extremely rare, but is extremely destructive and difficult to restore back to its previous state.
- Change/improvement: Slight performance improvement when loading the Logging page in some projects.
- Change/improvement: In the External Module Framework, the \$module->redirectAfterHook() after hook method was added.
- Bug fix: When viewing the MyCap participant list, the Baseline Date might mistakenly be displayed in an incorrect date format.
- Bug fix: A user that does not have Project Setup privileges in a project could potentially exploit a missing user rights check on the endpoints where field attributes are modified in the Online Designer by crafting special HTTP requests to those specific endpoints. This does not allow the user to do anything other than add new fields or edit the attributes of existing fields.
- Bug fix: When viewing the Record Status Dashboard in certain cases when using PHP 8, the page might crash with a fatal PHP error. (Ticket #214370)
- Bug fix: When users make API requests, the full API token was mistakenly being logged in the redcap\_log\_view table for each request. This is not typically an issue because such values in that table are not exportable via the front-end user interface but are only accessible via direct database access. However, if some institutions are sending the full export of their redcap\_log\_view table to their local security office, the logging of the API token in that table could be problematic. The API token will now be redacted in the redcap\_log\_view table. (Ticket #214322)
- Bug fix: When users delete or regenerate their API token in a project, the value of the old token was mistakenly not being logged on the project's Logging page.
- Bug fix: Fixed issue with the CDIS "Break the Glass" feature. When attempting to restore a serialized list of patients, an error is thrown due to the DateTime class not being listed within the "allowed\_classes" parameter of the unserialize function. (Ticket #214670)
- Bug fix: An administrator with only "Install, upgrade, and configure External Modules" admin privileges might not be able to view certain External Module pages or perform certain External Module operations, such as accessing the EM Manage page in the Control Center. (Ticket #214721, #214722)

- Bug fix: An issue might occur when downloading a file from a File Upload field when REDCap is hosted on Google Cloud Platform due to the usage of an unnecessary project\_id prefix for Google bucket file storage.
- Bug fix: The notification for the Unicode Transformation process on the Configuration Check page might mistakenly not be displayed on the page anymore after step 2a of the process has been completed. It should not go away until all 4 of the steps are completed.
- Bug fix: When attempting to access the "App Data Dumps" on the REDCap Mobile App page in a project, if any of the data dump files somehow can't be found in the file system (which would be unexpected), the page would crash with a fatal PHP error. From now on, it will merely skip any files in this situation. (Ticket #215007)
- Bug fix: When date or datetime fields are piped into the choice label of a drop-down field, in which the date/datetime field has MDY or DMY date format and also exists on the same page as the drop-down field, the date/datetime values might not get piped in the correct format but may appear in the drop-down as a mangled date/datetime value.
- Bug fix: Minor MyCap-related bug fixes and UI changes.

## Version 13.10.0

### CHANGES IN THIS VERSION:

- **New feature: Longitudinal functionality for MyCap-enabled projects** - In previous versions, longitudinal projects could not utilize MyCap (the feature would be disabled automatically). Now with the release of the new MyCap mobile apps on Android and iOS, longitudinal functionality is possible and is supported in the new MyCap mobile app. For any projects currently using MyCap, there will be a "transition" button on the MyCap Participants page that will allow the users to transition the project and any existing participants to use the new MyCap mobile app (note: this transition process is completely optional and not required unless wanting to use longitudinal functionality and other new MyCap features). The older MyCap mobile apps will still be available and updated in the Apple App Store and Google Play Store for the time being.
- **Medium security fix:** The Chart.js JavaScript library that is included in REDCap contains a bundled version of the Moment.js library, which contains a security vulnerability in that specific version. The bundled Moment.js library has been removed. It does not need to be replaced since REDCap already has the latest version of Moment.js included separately already.
- **Improvement:** Enhancements to the Codebook page - For longitudinal projects, a table of all events names is displayed near the top of the page. If events and/or missing data codes exist, the table of them may be included in or excluded from the page printout via a checkbox at the top right corner of their table. Also, in the printout of the page, the time and project title are now displayed.
- Bug fix: The newer background process that helps prune abandoned/zombie database processes might mistakenly be preventing some important processes from finishing, such as data fetching for CDIS (both CDM and CDP), data exports, and also the Easy Upgrade process.
- Various updates and fixes for the External Module Framework
  - Miscellaneous security scan improvements.
  - Replaced the setRoleForUser() implementation with UserRights::updateUserRole-Mapping() so that logging would be included automatically.
  - Control Center module list improvements: 1) Sorted the list of modules to enable by name, 2) Improved module list load time when modules with updates are not enabled

- anymore, 3) Displayed modules that are still enabled even though their directories are missing, and 4) Cached settings to improve module list load time.
- Bug fix: When using Azure AD V1 for authentication, the setting "AD attribute to use for REDCap username" on the Security & Authentication page mistakenly listed the employee ID attribute as "employeeID" when it should instead be "employeeId". This could prevent proper authentication if that option was selected. (Ticket #213619)
  - Bug fix: When using the Survey Login feature and a survey participant begins a new survey while their survey login session is still active, the survey instructions would mistakenly not be displayed on the page by default. (Ticket #212987)
  - Bug fix: When exporting a project as a Project XML file and then creating a new project from the XML file, if the Survey Login feature had been utilized and the Survey Settings checkbox had been checked when exporting the XML file, the Survey Login settings would mistakenly not get transferred into the newly created project. (Ticket #212987)
  - Bug fix: When using the Custom Record Label on a multi-arm longitudinal project, if an "ad hoc" calendar event is created and is attached to a specific record, the Custom Record Label might mistakenly not be displayed when viewing the calendar event in the calendar popup window. (Ticket #23367b)
  - Bug fix: When adding a new instrument in a MyCap-enabled project, the Online Designer page might mistakenly crash with a fatal PHP error when using PHP 8. (Ticket #213817)
  - Bug fix: When enabling Mosio SMS Services on a project, it would mistakenly allow users to enter a Mosio API Key that is already being used by another REDCap project. This should not be allowed. It will now prevent a user from entering a Mosio API Key if that key is already being used by another project. Additionally, if two projects already are using the same Mosio API Key before upgrading to this REDCap version, the Mosio configuration popup will auto-disable the SMS Conversation option to prevent both projects from using the same Mosio API Key, which could cause issues specifically when using the "Initiate survey as SMS conversation" option. (Ticket #213376)
  - Bug fix: An error was thrown during the deserialization of CDIS messages. The issue was caused by the DateTime class not being included in the list of allowed classes for deserialization.
  - Bug fix: When using Multi-Language Management, branching logic based on a field set by the action tags LANGUAGE-CURRENT-FORM/-SURVEY would mistakenly not work when the field is a text box field.
  - Bug fix: REDCap's internal function for copying files would mistakenly fail to copy files when using Google Cloud Storage as the file storage system. (Ticket #213946)

## Version 13.9.3

### CHANGES IN THIS VERSION:

- **Minor security fix:** A DOM-based Cross-site Scripting (XSS) vulnerability was discovered on all project-level pages that could possibly be exploited if a malicious user is able to manipulate the JavaScript "location" interface/variable in specific ways.
- **New action tag: @MC-PARTICIPANT-CODE** - This action tag is a MyCap annotation that can be used with Text fields. When using this action tag on a field, the field will capture the MyCap participant's participant code whenever they join a project via the MyCap mobile app. NOTE: This is used only for the MyCap mobile app. The field's value is not generated when viewing the data entry form but only when the MyCap app is making a call to REDCap when

the participant joins the project. Additionally, while this action tag can be added to a new field in already-existing MyCap projects, a field with this action tag will be auto-added to any projects where MyCap is enabled in the project after the fact and for any new projects created using the MyCap project template.

- **Improvement:** When viewing the Survey Access Code dialog on the Public Survey Link page, users may now click a button to copy the QR code to their clipboard. Additionally, users may now click the QR code to download it or click a link below the QR code to download it in the higher resolution SVG format, if desired.
- Bug fix: When pulling data from an EHR system via CDIS, date filters were not being correctly applied when fetching temporal data. (Ticket #212894)
- Bug fix: FHIR stats were mistakenly counted in DDP (Dynamic Data Pull) projects when using CDP (Clinical Data Pull) auto-adjudication.
- Bug fix: When using Table-based authentication and a user has somehow been granted access to a project and added to a user role (e.g., via user role CSV upload) despite the fact that the username does not exist as a real user account in the system, it would be impossible to remove the user from their role, to re-assign them to another role, or ultimately to remove them from the project. (Ticket #207764)
- Bug fix: When viewing the Online Designer in a MyCap-enabled project, the "Enable" button for enabling MyCap for a given a data collection instrument would mistakenly be disabled, thus preventing users from enabling the instrument as a MyCap task, if the instrument's first field was part of a matrix of fields. (Ticket #213075)
- Bug fix: When viewing the Stats & Charts page for a given report and clicking the "Missing" link to view a list of missing values, it might mistakenly display many false positives of repeating instances that do not really exist in the data. (Ticket #211913)
- Bug fix: When clicking the "Enable color-blind accessibility" displayed below a pie or donut Smart Chart on a data entry form or survey page, it would send the user/participant to a non-existent page, thus resulting in a 404 error. (Ticket #211920)
- Bug fix: When using "Azure AD OAuth2 & Table-based" authentication together with Duo two-factor authentication (2FA), after a user successfully logs in via Table-based authentication, they would mistakenly not be redirected to the Duo OAuth2 page for two-factor authentication. (Ticket #211697)
- Bug fix: When using the Azure Communication Services Email API, the email functionality would fail to work if the Services Endpoint value did not end with a slash ("/").
- Bug fix: When using Multi-Language Management, the text "(Place a mark on the scale above)" that is displayed below Slider fields was mistakenly not translatable via MLM. It has now been added.

## Version 13.9.2

### CHANGES IN THIS VERSION:

- **Major bug fix:** If a repeating Automated Survey Invitation has been enabled in a project in which one or more records have triggered the ASI initially, if the ASI was then disabled for a certain amount of time and then re-enabled later, after which a user or participant triggered an ASI in *any* project in which the ASI is set to send immediately, it would mistakenly cause the repeating ASI in the original project to send/schedule hundreds or thousands of invitations for each record that was originally triggered in that original project. This issue was caused by the

invitation-sending function being called recursively when an individual record triggers an ASI. (Ticket #210378)

- Change/improvement: When executing Data Quality rules, the Logging page now lists the specific DQ rule by name that was executed in the logged event, whereas previous versions merely stated "Execute data quality rule(s)" generically in the Logging. (Ticket #207900)
- Change/improvement: If a longitudinal project contains one or more records, and a user moves a field to a different instrument via the Online Designer, a warning will be displayed saying that moving fields to other instruments might potentially cause the orphaning of data, in which it tells the user to double-check their instrument-event mappings to ensure that no orphaning/data loss has occurred. And if it has, it tells the user that they can move the field back to its original instrument to restore any orphaned data. (Ticket #211829)
- Bug fix: In certain instances, the "Download PDF of instrument(s) via browser's Save as PDF" feature may mistakenly not show all the text for Notes Box fields in the resulting PDF if the Notes Box fields contain a lot of text. (Ticket #211228)
- Bug fix: The feature to compare data dictionaries/revisions on the Project Revision History page might produce unexpected results in which the comparison does not display the correct results. (Ticket #208391)
- Bug fix: Descriptive Text fields would mistakenly not be returned when a user searches for fields via the Field Finder on the Codebook page. (Ticket #212763)
- Bug fix: After modifying the schedule of an existing record on the Scheduling page, the logged events of schedule modifications would correctly appear on the Logging page by default, but some of the schedule-related logged events would not appear on the Logging page when using the "Filter by record" option for that specific record. Note: This will be fixed for all schedule modifications going forward, but all existing logged events for schedule modifications cannot be fixed retroactively. (Ticket #208481)
- Bug fix: When calling the API Export Records method to retrieve data in "odm" format from a project that contains data for repeating events, if the "fields" parameter is provided in the API call and does not contain any field utilized on a repeating event, the resulting XML might mistakenly be malformed and not structured correctly. (Ticket #208787)
- Bug fix: Administrators that have "Perform REDCap Upgrades" privileges would receive an error message when attempting to use the Easy Upgrade feature if they did not also have some other admin privileges. This has been fixed so that only "Perform REDCap Upgrades" privileges are needed to perform an upgrade. (Ticket #211957)
- Bug fix: When using the @DOWNLOAD-COUNT action tag in which the field being referenced by the action tag exists on the same page, if users or participants download the file using their browser's right-click "Save as" option (as opposed to directly clicking it), it would mistakenly not register as a download to be incremented for the count field on the page. Although the server-side call to download the file via "Save as" would increment the counter field's value on the back-end, the front-end value would now be out of sync. There's no way to change the counter on the page from being temporarily out of sync, but REDCap will now auto-fix the value after the form/survey is submitted in order to reconcile the true count value and save it to the counter field. In summary, this fix should ensure that the counter field's value is correct whether or not someone downloads the file with a normal click or via the right-click "Save as" option.
- Bug fix: When modifying any of the drop-down fields in the Survey Design Options section of the Survey Settings page for a given instrument, it would cause the Cancel button at the top or bottom of the page to no longer work unless clicked many times. (Ticket #211204)
- Bug fix: Several files located in the /redcap/webtools2/pdf/ subdirectories are no longer compatible with PHP 8.2.0 and higher. In addition to fixing the compatibility issues with PHP 8.2, all

the files in /redcap/webtools2/pdf/ have now been incorporated directly into the REDCap version directory so that they can be kept up to date on an ongoing basis with future versions of PHP. (Ticket #211377)

- Bug fix: If the File Storage method for REDCap is set to "Google Cloud Storage using API Service Account", downloading the Instrument Zip file of an instrument that is enabled as a survey and contains a survey logo would mistakenly fail due to a fatal PHP error. (Ticket #212967)
- Bug fix: When entering a non-URL value (e.g., field variables, Smart Variables) into the "Embed an external video" text box while editing a Descriptive Text field in the Online Designer, it would mistakenly prepend "http://" to the beginning of the value entered.
- Bug fix: Public reports and public project dashboards might not display optimally when viewed on mobile devices, such as images appearing too large or the report table going outside of its parent box.
- Bug fix: In certain situations, the Background Data Import feature might mistakenly cause the cron job to fail with a fatal PHP error when running PHP 8. (Ticket #213086)

## Version 13.9.1

### CHANGES IN THIS VERSION:

- Bug fix: When using the Designate Instruments page in a longitudinal project while running PHP 8, editing the event grid may result in an error message, preventing the edits from being saved. This issue was supposedly fixed in a previous issue but mistakenly was not. (Ticket #212677)

## Version 13.9.0

### CHANGES IN THIS VERSION:

- **New text string functions**
  - **replace\_text** (haystack, search, replace) - Replaces parts of a text value with a specified replacement text value - Finds text ("search") inside another text ("haystack") and replaces all found occurrences with the given text ("replace"). For example, assuming [field1] has a value of "Paul Taylor, Rob Taylor", `replace_text([field1], "Taylor", "Harris")` would result in "Paul Harris, Rob Harris". Note: This function performs a case-sensitive replacement. Additionally, you can search for line breaks (e.g. in Notes fields) with "\n".
  - **concat\_ws** (separator, text, text, ...) - Joins the text from multiple text strings with a separator - This works exactly like `concat` but inserts the separator in between each concatenated item. For example, `concat_ws(" and ", [veggie1], [veggie2], "Tomatoes")` might result in "Peas and Carrots and Tomatoes".
- **New math functions**
  - **mod** (dividend,divisor) - Modulo - Returns the remainder of the (integer) division (modulo) dividend/divisor. Both values must be integers. E.g. `mod(10,4)` will result in 2 because 2 is the remainder of 10 divided by 4.
  - **exponential** (number) - Exponential of e - Returns "e" (Euler's Number) raised to the power of a number:  $e^x$ . Note: The value of the exponent x must be a number. E.g. `exponential(1)` will return 2.718281828459045.
- **New feature: Azure Communications Email API Integration**

- As an alternative for sending outgoing emails from REDCap (rather than using the standard settings in PHP.INI to send them natively from the web server), you may use Azure Communications Email API, which is a third-party paid service that can send emails on behalf of REDCap.
- The option can be configured on the General Configuration page in the Control Center. You merely have to provide the API key and services endpoint for your Azure Communications account, and it will begin using the Azure Communications Email API to send *all* emails going out of REDCap. Note: This email service must be used together with REDCap's Universal "From" Address (located on the General Configuration page) using an authorized sender address in one's Azure account.
- Limitations: Due to limitations in the implementation of this API by Microsoft/Azure, this email-sending method is not able to display inline images in the body of emails, but any inline images will instead be represented as regular attachments. Additionally, the true sender's email address and display name are not able to be displayed to the recipient in their email client, thus the recipient will only see the REDCap Universal 'From' Address as the sender with no corresponding display name.
- Improvement: The full file name of a file uploaded to a File Upload field will be displayed when a user hovers over the file download link. This is helpful when the file name is very long and is thus not displayed in full on the page. (Ticket #93790)
- Improvement: CDIS now has the ability to check the system capabilities of a FHIR conformance statement retrieved from a FHIR server. Based on the capabilities mentioned in the conformance statement, REDCap will dynamically disable any FHIR resources that are not available. Without this new check, users might not be aware of the resource availability on a particular FHIR system, and they could inadvertently select resources that are not supported, which could result in errors when attempting to fetch these unsupported FHIR resources.
- Change/improvement: When performing a bulk import of new Table-based users via CSV file in the Control Center, the CSV file will now use the user's preferred CSV delimiter as specified on their Profile page. In previous versions, the page only accepted comma-delimited CSV files.
- Change/improvement: When using Multi-Language Management and exporting CSV files of the MLM translations, a byte-order mark (BOM) is now added to all CSV files to allow them to be opened successfully in Excel.
- Bug fix: When using the EHR launch window for Clinical Data Pull, the REDCap page embedded in the EHR might mistakenly not display any CDP projects for the user for the relevant patient. (Ticket #211654)
- Bug fix: When using CDIS, while REDCap is processing a bundle of FHIR resources, a PHP warning could be thrown if the FHIR bundle has no entries.
- Bug fix: In certain places throughout REDCap, the rich text editor might mistakenly display the "Insert/edit media" button on the editor toolbar. This was added unintentionally, and in most (if not all) cases, attempting to add media using that button would not be successful. That media button has now been removed from the editor. (Ticket #211132)
- Bug fix: Certain pages in REDCap were mistakenly no longer compatible with iPads/Mobile Safari. Bug emerged in REDCap 13.8.3. (Ticket #202806d)
- Bug fix: When using the Designate Instruments page in a longitudinal project while running PHP 8, editing the event grid may result in an error message, preventing the edits from being saved. (Ticket #211983, #211837)
- Various updates and fixes for the External Modules Framework, including preventing deleted, completed, and in-analysis projects from appearing in module setting dropdowns.

- Bug fix: When using Multi-Language Management, the MLM page in the Control Center might mistakenly not export the MLM usage stats in a way that the file can be opened successfully in Excel. (Ticket #211875)
- Bug fix: For certain server configurations, Send-It might cause some files to be corrupted when downloaded by the recipient. (Ticket #212072, #208036)
- Bug fix: When a user is running Data Quality rule A or B, it might mistakenly return checkbox fields as discrepancies. As noted by the single asterisk at the bottom of the Data Quality page, rules A and B note that "checkbox fields are also excluded since an unchecked checkbox is itself often considered to be a real value." (Ticket #212048)
- Bug fix: When performing an API Metadata Import, a data dictionary snapshot would mistakenly be taken after the new metadata was saved via the API call when instead the snapshot should be taken immediately beforehand during this metadata import process.
- Bug fix: In certain edge cases that involve the Records::getRecordList() method being called by a REDCap plugin, a fatal PHP error might occur when using PHP 8 if the "pid" parameter does not exist in the current URL but has been set as \$\_GET['pid'] manually by the plugin itself. (Ticket #212232)
- Bug fix: If a checkbox field contains a choice coding that contains a period, in which there exists another choice coding with the same value if the period is excluded (e.g., "2" vs "2."), those two choices would get mistakenly conflated as the same import/export version of the checkbox variable name, which could cause issues with data exports and reports not displaying correctly. From now on, any periods existing in a checkbox coding will be converted to an underscore in the resulting import/export variable name, whereas in previous versions the period was removed completely from the variable name. (Ticket #211904)
- Bug fix: In certain situations, the Background Data Import feature might mistakenly cause the cron job to fail with a fatal PHP error when running PHP 8. (Ticket #212276)
- Bug fix: When importing a missing data code for a field that has a min/max validation range, the data import process would mistakenly return an error saying that the missing data code value was out of range. Instead, it should allow the missing data code value to be imported. (Ticket #211903)
- Bug fix: Using the function isblankormissingcode() in a calculation for non-numeric missing data codes might mistakenly cause the server-side rendering of the calculation (e.g. Data Quality rule H) to return an incorrect value. (Ticket #212145, #212178)
- Bug fix: If a field has the @CALCTEXT action tag and also has date/datetime validation, server-side processing of the calculation (e.g., Data Quality rule H) might mistakenly fail to save a new/correct value for the @CALCTEXT field. (Ticket #211780)
- Bug fixes and changes for CDIS: A patient's address might not be parsed correctly in the FHIR payload, and PHP 8 related errors were occurring when pulling Observations data.
- Bug fix: When exporting a PDF of an instrument containing data via the API, the Logging page would mistakenly display the project ID in place of the record name in the Action column of the Logging table for this logged event. This will be fixed so that it will resolve this issue for both past logged events and future logged events. (Ticket #212245)
- Bug fix: Some folders in the File Repository might mistakenly not display due to a DataTables error caused by the JSON-encoding of mangled UTF-8 characters in the descriptions and attributes of the files being displayed in the file list. (Ticket #208637)
- Bug fix: If a Notes field is embedded inside a checkbox field's choice label on a survey that has "enhanced radio buttons and checkboxes" enabled, the checkbox choice would mistakenly get unchecked whenever the participant clicked or focused their cursor on the Notes field. Note: This does not affect embedded Text fields but only Notes fields. (Ticket #210763)



- Bug fix: If the query of a Dynamic SQL field begins with "select" followed immediately by a line break or carriage return (as opposed to a space), the Dynamic SQL field would not return any results and would not display any drop-down options. (Ticket #212474)
- Bug fix: If using an HTML "style" tag inside user-defined text (e.g., field label, survey instructions), the CSS styles inside the tags might mistakenly not work on the page if line breaks or carriage returns occur anywhere inside the opening and closing style tag. (Ticket #211394)
- Bug fix: When using an [aggregate-X] smart variable in a calculation or CALCTEXT field, depending on the context the calculated value might not always get saved successfully, and additionally the Logic Editor might note the calculation to have errors when it in fact does not. (Ticket #211063)

## Version 13.8.5

### CHANGES IN THIS VERSION:

- **Improvement:** New background process that will help prune abandoned/zombie database processes (e.g., long-running queries that continue running on the database after a user has left the page on which the query is being run) that might decrease the overall performance of the database server. This process is performed every couple minutes by a cron job. This may or may not result in a noticeable database performance improvement.
- **New action tag: @MC-PARTICIPANT-JOINDATE** - This action tag is a MyCap annotation that can be used with Text fields with date/time validation. When using this action tag on a field, the field will capture the install date/time of the MyCap participant whenever the participant joins a project via the MyCap mobile app. NOTE: This is used only for the MyCap mobile app. The field's value is not generated when viewing the data entry form but only when the MyCap app is making a call to REDCap when the participant joins the project. Additionally, while this action tag can be added to a new field in already-existing MyCap projects, a field with this action tag will be auto-added to any projects where MyCap is enabled in the project after the fact and for any new projects created using the MyCap project template.
- **Improvement:** The Data Import Tool page now provides options in Step 1 to download the Data Import Template with alternative delimiters, such as tabs and semicolons.
- Change/improvement: The favicon was updated to a higher resolution image.
- Change/improvement: The Send-It page now checks the filesize of the file before the user attempts to upload it in order to ensure the file is not larger than the max allowed size. In previous versions, its filesize would only be checked after it had been uploaded.
- Change/improvement: Better memory management for some CDIS-related cron jobs.
- Bug fix: If a user has created a File Repository folder that is Data Access Group restricted or User Role restricted, and then a user deletes the DAG or User Role to which the folder is restricted, the folder would mistakenly be deleted, after which all of the files in the folder would be automatically moved into the main top-level folder in the File Repository. This has now been changed so that if a folder is restricted to a User Role, the folder will no longer be deleted when the User Role is deleted, but the folder and its files will remain as not restricted to any role. And if the folder is restricted to a DAG, users will simply be unable to delete the DAG until all its DAG-restricted folders are deleted first. (Ticket #210829)
- Bug fix: If a user is utilizing the "Upload users (CSV)" method to update user privileges on the User Rights page, in which a user is being assigned to a Data Access Group or is being removed from a DAG, the upload process would mistakenly not log the DAG assignment/removal on the Logging page. (Ticket #210831)

- Bug fix: If a longitudinal project is in production, a normal user with Project Design privileges on the "Designate Instruments for My Events" page could possibly remove an Instrument-Event mapping (i.e., uncheck a disabled checkbox in the mappings table), which they are not allowed to do to projects in production, if they know how to manipulate the webpage in specific ways and then click the Save button.
- Bug fix: When using the Calendar Sync feature, calendar events that do not have a time specified (but only a date) might reflect an incorrect start time and end time in some external calendar applications. (Ticket #211137)
- Bug fix: When using an HTML5 video tag in user input text (e.g., field labels, survey instructions), in which the tag contains the "controls" attribute, the attribute would mistakenly be renamed to "cremoved" in the resulting HTML. (Ticket #211141)
- Bug fix: For CDIS, fixed issues related to properly handling the absence of a valid FHIR access token, such as FHIR logs being saved with a "wrong format" error and also scenarios where the absence of a user ID caused unexpected behavior.
- Bug fix: When using Multi-Language Management and exporting general settings as a file, the data entry form and survey active states would mistakenly be swapped in the export file. (Ticket #211172)
- Various fixes and changes for the External Module Framework, including 1) miscellaneous security scan improvements, and 2) action tag documentation may now be added to an EM's config.json for display in the list of action tags available on a project.
- Bug fix: When a user is using the User Access Dashboard to delete or expire a user's access in a project, in some cases the action would mistakenly not get logged on the project's Logging page (although the action would be logged in the redcap\_log\_event database table, which might not be used by the project, thus making the logged event not accessible on the project's Logging page).
- Bug fix: When using Missing Data Codes in a project, in which a Text field with field validation has the [@nomissing](#) action tag, users would be able to manually hand-enter Missing Data Codes into the Text field, even though the value entered failed the field validation.
- Bug fix: When performing a data import that contains blank values for a Slider field, in which the import is set to allow blank values to overwrite existing saved values, the import process would mistakenly return an error message saying that the value must be an integer. It should instead not return any error message in this situation. (Ticket #211075)
- Bug fix: When a user has an apostrophe in their username, and the user goes to create a new project, they may not be able to access the project they just created. (Ticket #210832)
- Bug fix: The act of creating or editing an alert on the Alerts & Notifications page would get logged on the Logging page. However, the Logging page would represent the alert's "trigger\_on\_instrument\_save\_status" attribute incorrectly, displaying "any\_status" when the alert is set to be triggered when an instrument is saved with Complete status only and as "complete\_status\_only" when set to be triggered on any form status. Note: The alert itself would be saved correctly, but the logged event for creating/editing the alert would merely be inaccurate. (Ticket #210832)
- Bug fix: In some cases when an external module is being used, a fatal PHP error might occur for certain PHP versions. (Ticket #211611)
- Bug fix: When a field variable is being piped or used in logic, and the field is prepended with the Smart Variable [first-event-name] or [last-event-name], in which the current context is a different instrument on which the field itself is located, the event field pair might result in a blank value or an incorrect value. (Ticket #210930)

## Version 13.8.4

### CHANGES IN THIS VERSION:

- Bug fix: When using Twilio, it would mistakenly not send SMS messages to U.S. phone numbers with an 934 area code. (Ticket #90686b)
- Bug fix: If the system-level setting "ENABLE FILE UPLOADING FOR THE FILE REPOSITORY MODULE" is set to "disabled", users would still be able to upload files into the File Repository in any project. Bug emerged in REDCap 13.1.0. (Ticket #210765)
- Bug fix: The documentation for using reports as filters in Smart Charts, Smart Tables, or Smart Functions was confusing and has been updated for clarity. It notes now that when referencing a unique report name in Smart Charts, Smart Tables, or Smart Functions, no other filtering parameters can be used (e.g., DAGs, events) with the report filter and thus any other filters will be ignored. If users wish to additionally filter by DAGs and/or events, it is recommended that they add such filtering to the report itself by editing the report. The wizard on the Project Dashboard page has also been updated to reflect this.
- Bug fix: When using the @Wordlimit or @charlimit action tag on a Text field, the first field on the page that uses either action tag might have its "X characters remaining" label or "X words remaining" label, respectively, duplicated multiple times below the field itself. (Ticket #208658)
- Bug fix: The example Perl code in the API Playground for making Curl calls was outdated and would not run successfully for some users.
- Bug fix: When using MyCap in a project, a blank Menu might be displayed for participants when using the MyCap mobile app, specifically for iOS devices.

## Version 13.8.3

### CHANGES IN THIS VERSION:

- **Major bug fix:** When a user has File Repository user privileges in a project with the e-Consent Framework enabled on one or more instruments, the user would mistakenly be able to download the e-Consent PDF files stored in the PDF Survey Archive folder in the File Repository, even when the user does not explicitly have "Full Data Set" data export rights for the given instrument. In order to download the e-Consent PDFs, the user should have "Full Data Set" data export rights for the given instrument. (Ticket #210214)
- Bug fix: Some MyCap-related pages that deal with PROMIS instruments (auto-scoring and adaptive) might mistakenly crash due to a fatal PHP error when using PHP 8.
- Bug fix: If the Online Designer displays an error icon next to a MyCap-enabled instrument, it would allow the user to click the icon and attempt to try to fix the errors when the project is in production mode; however, it would fail to fix it and just re-display the error. Instead, it will now inform the user that errors exist but that they must put the project in draft mode first before they can fix the errors. (Ticket #210179)
- Bug fix: When using Duo two-factor authentication, if the system is set to "Offline", it would mistakenly prevent administrators from successfully logging in via Duo 2FA. (Ticket #202197)
- Bug fix: When a user is updating a language on the Multi-Language Management setup page, some import settings, such as the "Keep existing translations" option, would mistakenly not be honored during the language update process. (Ticket #210395)
- Bug fix: When attempting to upload a CSV data file via the Data Import Tool using the background import process, in which the CSV headers (i.e., variable names) in the data file are

wrapped in quotes, REDCap would mistakenly return an error message saying that the headers are not formatted correctly. (Ticket #210299)

- Bug fix: In longitudinal projects with multiple arms, certain actions (such as deleting a record, renaming a record, and others) would mistakenly execute SQL queries that were not structured correctly and thus might make the database server unnecessarily slow due to long query times.
- Bug fix: The Scheduling page would mistakenly never display the record drop-down list. Bug emerged in the previous release: 13.8.2. (Ticket #210446)
- Bug fix: When using certain action tags on a field where the value on the right side of the equal sign in the action tag definition is not wrapped in single quotes or double quotes and additionally other annotation text follows after the action tag in the Field Annotation text (e.g. [@char-limit=8](#) More text here), the action tag might not be interpreted successfully and thus might not get enforced. (Ticket #210175)
- Bug fix: If a survey is using a system-level theme or a user-saved custom theme, the theme colors would mistakenly not get preserved in the Project XML file if a user exports the Project XML file and then creates a new project with it. (Ticket #210371)
- Bug fix: When using the Data Resolution Workflow feature, if a user executes Data Quality rule H, fields that have been marked as "Verified data value" would mistakenly appear in the list of discrepancies (they should not appear there by default) and would not appear as "verified" in the DQ popup. (Ticket #209447)
- Bug fix: Using an [X-event-name] Smart Variable in combination with an [X-instance] Smart Variable in logic, calculations, or piping might cause the evaluation of the logic/calc/piping not to be performed successfully. (Ticket #208887)
- Bug fix: When using the Clinical Data Pull, the EHR Launch process might mistakenly fail. (Ticket #210523)
- Bug fix: The CDIS messaging feature might mistakenly display the phrase "invalid date" where the date/time of the message should be.

## Version 13.8.2

### CHANGES IN THIS VERSION:

- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered in the File Repository in which a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript in a very specific way inside the filename of an uploaded file. The user must be logged in to REDCap and also must have File Repository privileges in the project in order to exploit this. (Ticket #210134)
- Bug fix: When an instrument has an embedded field that is immediately followed by a piped field or by another embedded field (with no space between them), the field/value might mistakenly not be rendered in the exported PDF of that instrument. (Ticket #210165)
- Change: In longitudinal projects with Scheduling enabled, the "View or Edit Schedule" page will no longer render the record drop-down list of already-scheduled records on the page if the drop-down would contain more than 10,000 options. This is to prevent the page from becoming very slow for projects that contain lots of records that have been scheduled already. Users will still be able to view the schedule of individual records on the page though.
- Bug fix: A fatal PHP error might occur related to specific CDIS processes.
- Bug fix: A fatal PHP error might occur related to CDIS when performing the Standalone launch inside REDCap. (Ticket #209840)

- Bug fix: When viewing the PDF Survey Archive files for the e-Consent Framework in the File Repository, if the system-level e-Consent setting "Capture the IP address..." is set to "Do NOT capture IP address", the table header in the File Repository would mistakenly say "IP Address" instead of "Identifier (Name, DOB)". (Ticket #209302)
- Bug fix: When using the Control Center page to update the database tables to support full Unicode, in some situations the resulting SQL might mistakenly contain a double comma, which would result in SQL errors and prevent the process from completing successfully. (Ticket #209856)
- Bug fix: When using Multi-Language Management and using the Right to Left (RTL) setting when there are multiple choice fields with horizontal alignment, the choices might not always display correctly. (Ticket #209612)
- Bug fix: In certain scenarios, the Background Data Import cron job might mistakenly crash without finishing. (Ticket #209911)
- Bug fix: In certain scenarios when selecting to use the background process for the Data Import Tool, it might not allow the user to upload a CSV data file because it mistakenly thinks that the last field variable in the CSV file is not a real field name. (Ticket #209823)
- Bug fix: When taking a survey while using a mobile device, the page would auto-scroll unnecessarily after completing a multiple choice field that has one or more visible fields embedded inside it. In this case, the page should not auto-scroll when the field contains embedded fields. (Ticket #208523)
- Bug fix: When a user selects the option "Remove all date and datetime fields" when exporting data, or if that option is automatically imposed upon the user due to having De-Identified data export rights, survey completion timestamp fields would mistakenly not be removed from the resulting data export file. (Ticket #208758)
- Bug fix: When a project is in Analysis/Cleanup status and the current user does not have Project Design & Setup privileges, the Project Home page and Project Setup page would mistakenly display a "Modify" button in the yellow section at the top of the page describing if users can modify records or not. This button should only be displayed for users with Design rights. Clicking the button would not actually change anything though, so this issue is more of an aesthetic issue that could cause confusion. (Ticket #107257)
- Bug fix: If an unclosed HTML comment (i.e. "<!--" without quotes) exists in user-defined text that is displayed on the page (e.g., field label, survey instructions, a piped value from a Text field), it would mistakenly cause the page content to be truncated, thus preventing the user from seeing any of the page after where the text is located. (Ticket #207897)
- Bug fix: A missing LOINC code was added to the CDIS mapping features.
- Bug fix: If the URL of another REDCap server exists in user-defined text that is displayed on the page (e.g., field label, survey instructions, a piped value from a Text field), the REDCap version number in the URL would mistakenly be replaced with the REDCap version number of the current server. It should never replace the REDCap version number in any URLs unless the URL corresponds to the current REDCap server. (Ticket #208528)
- Bug fix: When using Twilio or Mosio for a survey implemented as an SMS conversation, Yes/No fields and True/False fields would not have their field labels rendered correctly in the conversation. Instead of their field label, it would display "No" or "False", respectively. (Ticket #209624)
- Bug fix/change: The @DOWNLOAD-COUNT action tag documentation has been updated for clarity to explain that if a field with @DOWNLOAD-COUNT also utilizes @inline or @IN-LINE-PREVIEW and displays an inline PDF that has been uploaded, if a user downloads the file via the inline PDF controls (which are generated by the browser and not by REDCap), the download will not get properly counted via @DOWNLOAD-COUNT. This is to clarify that

@DOWNLOAD-COUNT only works when users/participants click the file download link on the page. (Ticket #208354)

- Bug fix: If an administrator does not specifically have "Modify system configuration pages" admin rights, the date field on the Cron Jobs page in the Control Center would mistakenly be disabled.
- Bug fix: If an inline image was added to text on an instrument via the rich text editor and then the project was later copied, the image would display correctly on the data entry form in the project copy, but it would mistakenly not display when viewing the instrument as a survey in the project copy.
- Bug fix: In certain scenarios, a couple fatal PHP errors might occur on survey pages when using PHP 8. (Ticket #210196)

## Version 13.8.1

### CHANGES IN THIS VERSION:

- Bug fix: On certain occasions, the Control Center and/or Configuration Check page might mistakenly display the warning that "Some non-versioned files are outdated", which might be incorrect and a false positive.
- Bug fix: A fatal PHP error might occur when using Duo for two-factor authentication.
- Bug fix: A fatal PHP error might occur when attempting to send emails via the Email Users page, thus preventing the emails from being sent.
- Bug fix: A fatal PHP error might occur related to CDIS when performing the EHR launch of the REDCap window inside the EHR user interface.

## Version 13.8.0

### CHANGES IN THIS VERSION:

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

- **Critical security fix:** A Blind SQL Injection vulnerability was found on data entry forms and survey 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. This bug affects all known REDCap versions.
- **Critical security fix:** A PHP Deserialization 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 CDIS-related page while manipulating a certain CDIS-related cookie in a specific way. If successfully exploited, this could allow the attacker to remotely execute arbitrary code on the REDCap server. This vulnerability exists in REDCap 13.0.1 and higher.
- **Critical security fix:** A Blind SQL Injection vulnerability was found when calling certain API methods, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by entering specially-crafted data into a Text field, changing the field to a File Upload field, and then calling the Delete File or Import File API method. This bug affects all known REDCap versions.
- **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. In order to exploit this, the user must be logged in as a REDCap user and must also have one or more instruments enabled as MyCap tasks.
- **Major security fix:** A Cross-site Scripting (XSS) vulnerability was discovered in which a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript in a very specific way on many pages that output user-defined text onto a REDCap webpage. This bug affects all versions of REDCap.
- Bug fix: After unsuspending a user on the Browse Users page on the "View User List By Criteria" tab, the "Display only X users" drop-down would mistakenly get reset. (Ticket #208937)
- Bug fix: A new Clinical Data Mart background process would not be scheduled if the current one was taking too long to complete.
- Bug fix: PHP 8 related fix for the Data Import Tool. (Ticket #208086)
- Bug fix: When using Multi-Language Management with the e-Consent Framework, some text on the e-Consent confirmation screen at the end of the survey was mistakenly not translatable.
- Bug fix: When using Multi-Language Management, the language switcher and globe menu would not work on survey return pages when the survey is set up to show a logo *and* the option to "Hide survey title on survey page when display logo" is turned on. (Ticket #208961)
- Bug fix: When using Multi-Language Management on a survey where Google reCAPTCHA is enabled, the Google reCAPTCHA text would mistakenly not be translatable. (Ticket #208797)
- Bug fix: PHP 8 related issue on certain MyCap pages in project. (Ticket #208688)
- Various fixes and changes for the External Module Framework, including 1) Documented sanitizeFieldName() method, and 2) Miscellaneous security scan & documentation improvements.
- Bug fix: In some situations, the survey page might mistakenly throw a fatal PHP error for PHP 8. (Ticket #208147)