

ARTICLE



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rob.taylor (/community/profile.php?id=8) posted • 7 years, 4 weeks ago (2016-04-05 13:00)

ChangeLog: Standard Release

This page documents all changes to REDCap from version to version and provides a complete listing of bug fixes, changes, and added features for each version of REDCap that is released.

ChangeLog pages for Standard Release: [Version 12.0.0 - Latest \(https://redcap.vanderbilt.edu/community/post.php?id=13\)](https://redcap.vanderbilt.edu/community/post.php?id=13) | [Version 10.0.0 - 11.4.4 \(https://redcap.vanderbilt.edu/community/post.php?id=140038\)](https://redcap.vanderbilt.edu/community/post.php?id=140038) | [Version 8.10.0 - 9.10.0 \(https://redcap.vanderbilt.edu/community/post.php?id=110221\)](https://redcap.vanderbilt.edu/community/post.php?id=110221) | [Version 8.5.0 - 8.9.3 \(https://redcap.vanderbilt.edu/community/post.php?id=57163\)](https://redcap.vanderbilt.edu/community/post.php?id=57163) | [Version 7.6.0 - 8.4.5 \(https://redcap.vanderbilt.edu/community/post.php?id=44513\)](https://redcap.vanderbilt.edu/community/post.php?id=44513) | [Version 6.5.0 - 7.5.2 \(https://redcap.vanderbilt.edu/community/post.php?id=36626\)](https://redcap.vanderbilt.edu/community/post.php?id=36626) | [Version 1.2.0 - 6.4.6 \(https://redcap.vanderbilt.edu/community/post.php?id=7927\)](https://redcap.vanderbilt.edu/community/post.php?id=7927)

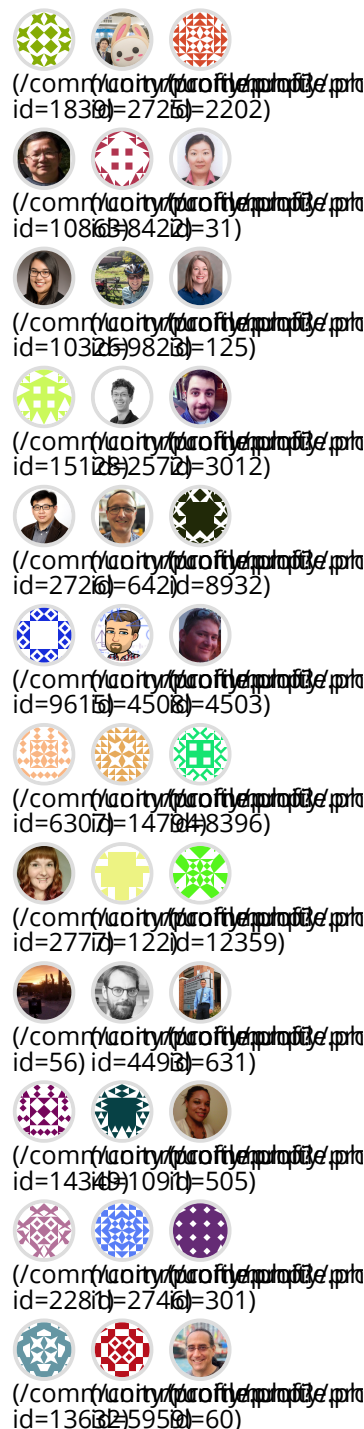
Version 13.4.12 (released on 2023-05-03)

CHANGES IN THIS VERSION:

- **Critical security fix:** A Blind SQL Injection vulnerability was found on survey pages, in which a malicious user could potentially exploit it and execute arbitrary SQL commands on the database by manipulating an HTTP request to the survey end-point in a specially-crafted way.
- **Improvement:** More options for the new "Navigate to page" feature for administrators: 1) Admins can now navigate to Control Center pages via typing "cc", 2) Help is context sensitive (project links are disabled and "cc" prefix is removed while in the Control Center), 3) Destinations in the popup are now clickable links (project links are not clickable when viewed on a Control Center page), 4) Holding CTRL while pressing ENTER or clicking a link will open in a new tab, and 5) External Module related pages support

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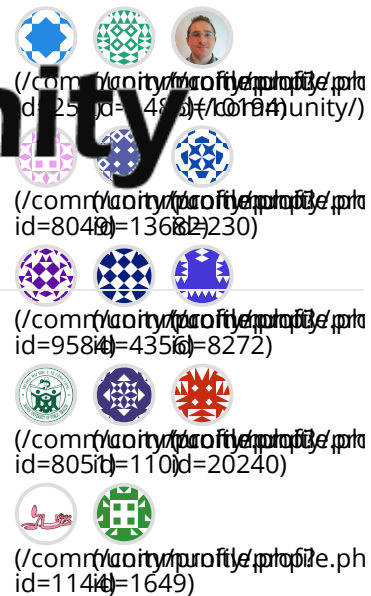




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the EM framework's alternate /external_modules/ directory location, if being used.

- Bug fix: Hovering over the "view list" links to view selected surveys in a table on the Alerts & Notifications page would mistakenly not display anything. Bug emerged in REDCap 13.4.0 (Standard).
- Bug fix: When using the [form-link] or [survey-link] Smart Variable with Custom Text while also having the [new-instance] Smart Variable appended to it, it would mistakenly return a blank string instead of a survey link.
- Bug fix: Fixed more issues related to error checking for the Imagick PHP extension check on the Configuration Check page.
- Bug fix: When exporting a PDF of a survey response in some specific ways, it might mistakenly return the word "ERROR" instead of outputting the PDF. Bug emerged in REDCap 13.4.9. (Ticket #204340)
- Bug fix: If some Smart Variables are used in a calculation or conditional logic, in which the evaluation of the calculation/logic results in a blank/empty string (i.e., after applying the current context and the current data during the logic evaluation process), an incorrect value might be returned from the calculation/logic. For example, this could cause calculated fields and Data Quality rule H not to function as expected. (Ticket #203945)
- Bug fix: When using Multi-Language Management, fields on a data entry form that are piped on the page would mistakenly disappear from the page immediately after the form has loaded. (Ticket #204372)
- Bug fix: When using Multi-Language Management, the Form Complete status field on data entry forms would mistakenly not change to the correct translated text when switching languages on the page while using iOS. (Ticket #203189b)
- Bug fix: When opening a data entry form or survey page in certain versions of iOS in Mobile Safari, the page would never fully load due to a JavaScript error. (Ticket #202806, #204332)
- Bug fix: When a Survey Base URL is defined in the Control Center and a survey participant clicks the "Close survey" button after completing a survey, if the survey had been opened in the participant's browser from outside of REDCap, such as clicking a link in an email, in which the browser will not let the webpage close the tab but instead falls back to displaying the "You may now close this tab/window" message on the page, the participant would mistakenly not be taken to a URL beginning with the Survey Base URL but would instead be taken to the non-survey Base URL defined in the Control Center, which could be confusing to the participant. (Ticket #204422)
- Bug fix: When attempting to upload Alerts & Notifications via CSV file, if the "email-to" field contains the value [survey-participant-email], REDCap would mistakenly return an error message saying the value isn't valid when it actually is. (Ticket #201256)
- Bug fix: When using Multi-Language Management, in certain cases an error would occur when attempting to import MLM settings via CSV or JSON files, thus preventing the upload from completing.





- Bug fix: If proxy server settings have been provided on the General Configuration page in the Control Center, those settings would mistakenly fail to be used by the internal MyCap plugin check on the MyCap Configuration Check page and thus could result in a false positive saying that issues exist.
- Bug fix: When using Multi-Language Management and using the eConsent Framework, the footer of the eConsent PDF, when displayed at the end of a survey, would mistakenly not have its text translated by MLM. This issue was supposedly fixed in the previous version but mistakenly was not. (Ticket #204669)
- Bug fix: When a user tries to send a MyCap announcement to their MyCap participants, the Announcement dialog would always mistakenly close before a message can be added. (Ticket #204571)
- Bug fix: When using Multi-Language Management on a survey, the Font Resize buttons might mistakenly not display text for the correct/selected language when hovering over the buttons. Bug emerged in REDCap 13.4.0.
- Bug fix: When clicking inside the "Deactivate" and "Permanently Delete" dialogs on the Alerts & Notifications page, the dialog would mistakenly close. In addition, the Cancel buttons were also not working in the dialogs. Bug emerged in REDCap 13.4.0. (Ticket #204799)
- Bug fix: The Email Users page in the Control Center might become unusable and/or lock up when attempting to select users to email when lots of users (thousands or tens of thousands) exist in REDCap. (Ticket #203947)
- Bug fix: The wrong language variable is used for the WebDAV file server check on the Configuration Check page. (Ticket #204838)
- Bug fix: The Share->Copy Link functionality might stop functioning for files in the File Repository if attempting to perform the functionality in a specific way more than once while on the page. (Ticket #204876)
- Bug fix: When utilizing the "Include PDF of completed survey as attachment" option in the Confirmation Email section on the Survey Settings page for a survey that is using the e-Consent Framework, the PDF consent form that is attached to the email would mistakenly have REDCap's back-end stored filename as the PDF filename rather than the intended user-friendly version of the filename. Additionally, the consent PDF was mistakenly not listed by name in the logged details of the event on the Logging page.

Version 13.4.11 (released on 2023-04-27)

CHANGES IN THIS VERSION:

- **Critical security fix:** A PHP Deserialization Remote Code Execution vulnerability was found in which a malicious user who is not logged in could potentially exploit it by manipulating an HTTP request to a survey page while uploading a specially crafted



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file. If successfully exploited, this could allow the attacker to remotely execute arbitrary code on the REDCap server. This vulnerability exists only in the following REDCap versions: 13.1.1 through 13.1.2 and Standard releases 13.3.1 through 13.4.10.

- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered in a file download process in which a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript in a very specific way into an HTML file that is then uploaded into a File Upload field or as a Descriptive Text field attachment, and then having a logged-in REDCap user attempt to download that file using a specially crafted URL.
- **Major bug fix:** Partially completed one-page surveys might mistakenly behave as if the participant has not started the survey if they return to the partially completed survey after having entered some data. (Ticket #204003)
- **Major bug fix:** When a survey participant opens a public survey under certain conditions, such as when multiple participants are using the same device, the survey page (and/or subsequent pages) might mistakenly get populated with the previous participant's responses, thus allowing participants to see data they should not. This fix reverts functionality from Ticket #142376 (from REDCap 13.4.3 Standard and 13.1.19 LTS) that attempted to gracefully recover a participant's session if they used their browser's BACK button on a survey as a means of returning to a previous survey page. (Ticket #204164)
- **Improvement:** When viewing PDF attachments on Descriptive Text fields on a data entry form or survey, in which the PDF is set to be displayed inline, the PDF frame is now adjustable at the bottom so that its vertical size may be modified by the user/participant for better viewing.
- **Improvement:** Searching has now been added in the Action Tags popup and Smart Variables popup to allow users to find content faster in those popups.
- **Bug fix:** When publishing a MyCap configuration in a project, some chart fields might not get stored correctly in the config and thus might affect participants using the MyCap mobile app on iOS.
- **Bug fix:** When using Multi-Language Management, the @LANGUAGE-FORCE action tag (if being used on a field) would mistakenly not work as expected.
- **Bug fix:** When using DUO as an option for two-factor authentication, the 2FA process would mistakenly redirect users to the REDCap home page after a successful login rather than redirecting them to the current page they were originally on. (Ticket #203337)
- **Bug fix:** The "Field Finder" on the Codebook page might mistakenly display some HTML in the search results if the user begins the search with the letter "c".
- **Bug fix:** When using Duo two-factor authentication, the REDCap login page might mistakenly be blank when using Mobile Safari on an iOS device. (Ticket #203626)



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- Bug fix: If the first column of the Record Status Dashboard table is a sticky/floating column (because the table is very wide), the column's background color might mistakenly be transparent instead of a solid color thus causing the table to look strange. (Ticket #203655)
- Bug fix: When using Multi-Language Management and using the eConsent Framework, the footer of the eConsent PDF, when displayed at the end of a survey, would mistakenly not have its text translated by MLM.
- Bug fix: Fixed issues related to error checking for the Imagick PHP extension check on the Configuration Check page. (Ticket #203313b)
- Bug fix: Requests to the survey end-point that contained "__passthru" and "route" in the URL would mistakenly not get logged in the redcap_log_view table.
- Bug fix: When using Multi-Language Management, some browsers might attempt to auto-translate part of the webpage when viewing a page translated via MLM. Such a browser action will now be prevented in order to allow the form or survey to be viewed exactly how the user intended. (Ticket #203925)
- Bug fix: When viewing a Public Project Dashboard on PHP 8, the page might mistakenly crash due to a fatal PHP error. (Ticket #203634)
- Bug fix: DDP Custom might mistakenly fail to pull and display data correctly due to internal field-mapping issues.
- Bug fix: Some "popover" help text on various pages would mistakenly not display when a user's cursor hovers over them. Bug emerged in REDCap 13.4.0 (Standard).
- Bug fix: Fixed an issue with the auto-adjudication setting related to the use of email addresses in a CDIS project, in which it was causing the email addresses not to be fetched from the EHR.
- Bug fix: During the MyCap EM to REDCap migration process, the migration popup was displaying the wrong "number of tasks" if there are any inadequately-enabled tasks on the EM side.
- Bug fix: If the unique group name of a Data Access Group happens to be an integer and also happens to be the same value as the Group ID number of another DAG in the same project, users would mistakenly not be able to utilize the DAG Switcher if they attempt to move in and out of the DAG whose Group ID number matches the unique group name of another DAG. (Ticket #204033)
- Bug fix: When using "&new" in a survey URL of a repeating survey, in which the URL also contains extra URL parameters for the purpose of survey pre-filling, those extra parameters would mistakenly be lost and thus will not be pre-filled after redirecting the participant to a not-yet-created repeating survey instance. (Ticket #204113)
- Bug fix: When using Multi-Language Management, some browsers might attempt to display a popup to ask the user if the page should be auto-translated by the browser. In the previous version, the auto-translate action is now prevented, but this new fix now prevents the translation popup from displaying



altogether in order to reduce confusion for users/participants when using MLM. (Ticket #203925b)

Bug fix: If the dates are put together in a date/dm/ymd format, the DATEFORMAT parameter tag does not have the same date format, the resulting error message would mistakenly mention "Since the DATEFORMAT parameter was not provided as the fourth parameter in the equation, 'ymd' format was assumed". The date format parameter is a legacy feature and is no longer used or needed, so that specific part of the error message has been removed in these cases. (Ticket #204213)

Version 13.4.10 (released on 2023-04-20)

CHANGES IN THIS VERSION:

- **Major bug fix:** When copying a project and all its records, any fields that have no action tags (i.e., have nothing in the Field Annotation) would mistakenly have their value converted into a MyCap participant code for all records/events. Additionally, some repeating instance data might get orphaned or not get copied over correctly. (Ticket #203436)
- Bug fix: The MyCap mobile app might mistakenly crash in certain situations on the About page if the About page's image for the app is stored incorrectly in the project's MyCap configuration.
- Bug fix: The Control Center's Configuration Check page might mistakenly display an incorrect message that the Imagick PHP extension is not installed correctly when in fact the issue was that Ghostscript was not installed correctly on the server. (Ticket #203313)

Version 13.4.9 (released on 2023-04-19)

CHANGES IN THIS VERSION:

- **Critical security fix:** A Remote Code Execution vulnerability was found in the process whereby files are uploaded via File Upload fields and via the Data Import Tool, in which a malicious user could potentially exploit it by manipulating an HTTP request while uploading a specially crafted file on the Data Import Tool page, on a data entry form, or on a survey page. If successfully exploited, this could allow the attacker to remotely execute arbitrary code on the REDCap server. This vulnerability exists in all versions of REDCap.
- **Critical security fix:** An Insecure Direct Object References (IDOR) vulnerability was found, in which a malicious user could potentially exploit it by manipulating an HTTP request in a specially crafted manner on a survey page. This could allow the attacker to export PDFs containing data of individual survey participants (potentially containing sensitive/private information). Any valid survey link (including a public survey link) could be used



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and manipulated in order to export a PDF containing data for any record within the project to which the survey link belongs.

- **Major security fix:** A Link SQL Injection vulnerability was found on the Alerts & Notifications page in which a malicious user could potentially exploit it by manipulating an HTTP request on that page or indirectly via the survey page.
- **Medium security fix:** A Path Traversal vulnerability was found in a specific endpoint relating to the Clinical Data Pull feature, in which a malicious user could potentially exploit it by manipulating an HTTP request on a specific CDP page.
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered in which a malicious user could potentially exploit it by entering an HTML "iframe" tag in a carefully crafted manner into the value of a text field on a form or survey. Additionally, that text field's value must be piped to another place on that same page in order to exploit it. This bug exists in all versions of REDCap, both LTS and Standard Release.
- **Improvement:** New "Go to project page" feature for administrators only will appear on the top navbar (when not inside a project) and on the left-hand menu when inside a project. Entering the PID of a project and hitting Enter/Tab will navigate the admin directly to the project. Additionally, if the PID is followed by a specific 1-3 letter abbreviation, they can navigate to a specific page within the project - e.g., "181 an" to go to the Alerts & Notifications page in PID 181. To go to a specific record on the Record Home Page, also enter the record number - e.g., "34 rhp 999" to view record 999 on the Record Home Page of PID 34.
- **Change/Improvement:** When a participant attempts to log in to a survey via the Survey Login feature, the attempt is now logged, in which the following things are recorded in the project logging: 1) whether the login attempt was a success or failure, 2) the project fields being utilized in the login attempt, and 3) the context (e.g., the record, survey, and event).
- **Bug fix:** Long-running CDIS-related cron jobs might mistakenly prevent External Module cron jobs from running at their expected interval.
- **Bug fix:** When two administrators are viewing the Multi-Language Management page in the Control Center at the same time, the second person to navigate there will not be able to view the page while the first person is still viewing it due to a fatal PHP crash. Bug emerged in the previous version. (Ticket #202782)
- **Bug fix:** When using the "Compare" feature for data dictionaries and/or snapshots on the Project Revision History page, on certain occasions it would not perform the comparison correctly and thus would display incorrect results.
- **Bug fix:** Due to various API changes in the third-party web service used by the Field Bank feature, the Field Bank would no longer return any results if a user searched for a field in the Field Bank dialog in the Online Designer. This affects REDCap versions 10.7.0 and higher.



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- Bug fix: When copying a MyCap-enabled project that contains records, in which the records are also being copied, the process would fail to copy the records into the MyCap-enabled project in the new project. The records would get copied correctly but mistakenly not added to the MyCap Participant List.
- Bug fix: When an administrator uses the "Auto-fill" link on a data entry form or survey, it might mistakenly fail on Text fields that lack field validation. Bug emerged in the previous version. (Ticket #202933)
- Bug fix: If the two authentication settings "Number of failed login attempts..." and "Amount of time user will be locked out after having failed login attempts..." on the Security & Authentication page somehow have non-integer values, it could cause the REDCap login page to crash with a fatal PHP error when using PHP 8. (Ticket #202976)
- Bug fix: After renaming a record in a longitudinal project and using the Form Display Logic feature, the Record Home Page might mistakenly give a fatal PHP error when using PHP 8. (Ticket #203014)
- Bug fix: The DAG Switcher table might mistakenly display a bunch of up/down arrows below the table header row due to a CSS issue.
- Bug fix: When using Multi-Language Management on form or survey, the choice label from radio button fields that are inside a matrix would fail to pipe successfully if on the page. (Ticket #201392)
- Bug fix: CDIS-related bug that could cause issues when refreshing a user's FHIR access token, in which the format of the date used to check for expiration was wrong.
- Bug fix: When using Twilio telephony services for surveys, U.S. phone numbers having the area code "986" would mistakenly not work for SMS or voice calls unless the number has a "1" prepended to it. (Ticket #203044)
- Bug fix: When clicking any of the table headers for the project list table on the My Projects page, it would mistakenly hide all the projects in the list except for those in the "Unorganized Projects" folder. Additionally, if any project folders were previously open, the user would find that all project folders had been closed after reloading the page. (Ticket #203046)
- Bug fix: The login page for "Shibboleth & Table-based" authentication might mistakenly display both the Shib and Table-based login options under the Shib login tabs when using more than one Shibboleth login option. Bug emerged in REDCap 13.4.0. (Ticket #200919b)
- Minor changes and improvements for the External Module Framework: 1) Prevented hidden settings from being stripped out of getSubSettings() calls, and 2) Added the isAuthenticated() method.
- Bug fix: When using Multi-Language Management, the @LANGUAGE-FORCE action tag might not work as intended under specific conditions. (Ticket #202553)



- Bug fix: When using an [aggregate-X] Smart Variable in a calculation or any kind of conditional logic or branching logic, in which the value returned for the [aggregate-X] Smart Variable is greater than "09", the logic might mistakenly not function as expected. (Ticket #203063)
- Bug fix: When using Multi-Language Management on a data entry form, the MLM language switcher drop-down displayed on the form might mistakenly be obscured and/or not visible while using certain iOS devices. (Ticket #203189)
- Bug fix: The link to the Training Videos on the login page would be incorrect in some situations. (Ticket #203245)
- Bug fix: When an adaptive or auto-scoring survey that has been downloaded from the REDCap Shared Library is not the first instrument in the project and is set to "Redirect to a URL" on the Survey Settings page, the survey participant would mistakenly not be redirected to the defined URL after completing the survey. (Ticket #203316)

Version 13.4.8 (released on 2023-04-12)

CHANGES IN THIS VERSION:

- **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 any page that outputs user-defined text, such as field labels, survey instructions, etc. This bug allows anyone to inject the "script" tag on any page that outputs user-defined text. In addition, the HTML "s" strikethrough tag can no longer be used as an allowed HTML tag, but instead it is preferred that users use the HTML "strike" tag as an equivalent replacement if users are hand-coding HTML on a page. This excludes the usage of the strikethrough button in the rich text editor, which is unaffected by this issue. This bug does not affect any LTS versions. Bug emerged in REDCap 13.4.3 Standard.
- **Major bug fix:** The Simultaneous User Check, which ensures that two users cannot modify the same record/event/form/instance on the same project was mistakenly not working and would never display the warning to prevent users from being on the same instrument at the same time for a given record. Bug emerged in REDCap 13.2.0 (Standard). LTS is not affected by this bug.
- Change/improvement: HTML "strike" strikethrough tags are now allowed in user-defined text, such as field labels, survey instructions, etc.
- Bug fix: Several missing LOINC codes were added to the CDIS mapping features.
- Bug fix: A CDIS-related database query could throw a fatal error when computing information for a DataMart revision.
- Bug fix: When using MyCap, records might not appear in the MyCap Participant List if they were created while the MyCap



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feature was disabled in the project, after which MyCap was later enabled. (Ticket #202374)

- Bug fix: The "Auto-Refresh" link for administrators to update forms and surveys would mistakenly insert the wrong value for specific field validations, such as Number (1 decimal place), Number (comma as decimal), and other number types. (Ticket #202401)
- Bug fix: When loading the first page of a multi-page public survey, in which no records exist in the project yet, the survey page might display a "REDCap crashed" error when running PHP 8. (Ticket #202648)
- Bug fix: When downloading a PDF of an instrument that contains a Descriptive Text field with an inline PDF attachment, in certain cases an extra empty page might appear in the resulting PDF right before where the inline PDF is rendered. (Ticket #202598)
- Bug fix: When using the Smart Variable [stats-table] and limiting its data via appending a unique report name, in which the report itself returns zero results, the stats table would mistakenly display statistics for all records in the project. (Ticket #201751)
- Bug fix: The warning popup that is displayed when a user attempts to download a data dictionary when one or more of the instruments in the project have been imported from the REDCap Shared Library, in which the user must first agree to the Shared Library's Terms of Use, was mistakenly not being displayed when users also perform the following other relevant actions: download an instrument zip file, download a Project XML file, or copy the project.

Version 13.4.7 (released on 2023-04-07)

CHANGES IN THIS VERSION:

- Change/improvement: Some performance improvements and minor changes for the Unicode Transformation page, such as the exclusion of specific database table columns since they do not need to be transformed.
- Bug fix: If the REDCap database table structure has utf8mb4 collation while REDCap's database connection is configured to use utf8[mb3], both the db_character_set and db_collation values in the redcap_config database table will be modified to ensure that the character set is aligned. This fix will occur during the upgrade process and will also be added to the Unicode Transformation page.
- Change/improvement: When a cron job crashes and sends an email to the REDCap administrator, the email now includes a full stack trace of the error.
- Bug fix: When piping a field variable that has an [X-event-name] Smart Variable prepended to it while also having an [X-instance] Smart Variable appended to it, it might mistakenly return a blank value rather than piping the correct value. (Ticket #142932)



- Bug fix: When a @CALCTEXT field contains an if() function that has a plus sign (+) inside of single quotes or double quotes, the resulting text would mistakenly have the text " + " remaining, even plus sign. This would occur when viewing a @CALCTEXT field on a data entry form or survey but not via server-side calculation methods, such as Data Quality rule H. (Ticket #141653)
- Change: Improved memory management for several CDIS-related processes, especially those performed by the cron job.
- Bug fix: The modal dialog displayed when attaching a file via the rich text editor might not look correct because some CSS styles were mistakenly missing for certain elements in the dialog.
- Bug fix: Some users that are accessing a CDIS project might find that project pages might take a very long time to load. This only affects certain users on CDIS projects, but it is unknown which users might be affected by this.
- Bug fix: The tables that list the choices for multiple choice fields on the Codebook page were mistakenly missing some of their borders.
- Bug fix: If using Multi-Language Management, the MLM "Change Language" tooltip might not display the correct mouseover text due to issues with Bootstrap 5. Related, the position and spacing of the language selector on data entry forms was off also.
- Bug fix: If using Multi-Language Management, the @LANGUAGE-CURRENT-FORM action tag was working on (completed) surveys viewed on data entry pages, which should never have been the case.
- Bug fix: The new instance button for repeating instruments on the Record Home might mistakenly not be disabled when the form icon is disabled by Form Display Logic.

Version 13.4.6 (released on 2023-04-03)

CHANGES IN THIS VERSION:

- **Major bug fix:** Reverted the bug fix in [Ticket #142759](https://redcap.vanderbilt.edu/community/post.php?id=142759) (<https://redcap.vanderbilt.edu/community/post.php?id=142759>), which sought to provide server-side checking to prevent @READONLY fields from having their data values modified through the client side (e.g. JavaScript). This has been reverted because there appear to be too many scenarios in which this server-side checking was blocking legitimate data entry and thus some data was not getting saved properly. Most of these scenarios occurred when using certain action tags together with @READONLY, as described in [Ticket #202226](https://redcap.vanderbilt.edu/community/post.php?id=202226) (<https://redcap.vanderbilt.edu/community/post.php?id=202226>) (i.e., @CALCTEXT, @CALCDATE, @DEFAULT, @SETVALUE), but other scenarios, such as when performing survey pre-filling (via URL parameters or via POST requests) for @READONLY fields, could not easily be incorporated into the server-side checking. **Therefore, the server-side checking for**



@READONLY fields (added to REDCap 13.1.20 LTS and 13.4.4

Standard) has been removed/reverted because it was

preventing legitimate data entry on our online survey and

various scenarios.

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Version 13.4.5 (released on 2023-04-01)

CHANGES IN THIS VERSION:

- **Major bug fix:** Opening a data entry form when using PHP 8 would crash the page with a fatal PHP error on certain occasions. Bug emerged in the previous version.
- **Change:** When using the Unicode Transformation page, if a database table's row_format is COMPACT, it will now add ROW_FORMAT=DYNAMIC to the SQL transformation script so that this does not need to be done separately (can be time-consuming on its own).

Version 13.4.4 (released on 2023-03-31)

CHANGES IN THIS VERSION:

- **Bug fix:** If using MySQL 8 for the REDCap database, admins might see false positives for the database structure check in the Control Center, in which it might mistakenly say "Your Database Structure is Incorrect" when it is actually correct. Bug emerged in the previous version. (Ticket #202144)
- **Bug fix:** Fields that have a @READONLY action tag could have their data value modified on a survey page or data entry form by manipulating the webpage via JavaScript or via the web browser's developer console. (Ticket #142759)
- Various CDIS-related fixes

Version 13.4.3 (released on 2023-03-31)

CHANGES IN THIS VERSION:

- **Major bug fix:** If a user calls the "Export Records" API method and explicitly provides the "fields" API parameter as a comma-delimited text string (instead of an array), the API might mistakenly export the data for all project fields, including data for fields for which the API user does not have data export rights. (Ticket #200812)
- **Improvement:** "Postal Code (UK)" was added as a new field validation. After upgrading, an administrator will need to enable it on the Field Validation Types page in the Control Center. (Ticket #201961)



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- **Improvement/change:** If a participant returns to the first page of a multi-page survey (e.g., by clicking the Previous Page button or returning via the Return Code), the survey instructions can be viewed again by clicking the "View survey instructions" link at the top of page 1. In previous versions, the survey instructions could never be viewed again after the survey had been started (i.e., the first page had been submitted). (Ticket #201430)
- **Improvement:** When using the Google/Microsoft Authenticator option for two-factor authentication in REDCap, users will be able to enroll using their Google/Microsoft Authenticator app the very first time they log in to REDCap via 2FA, in which the enrollment QR code will be displayed there the first time they log in via 2FA. This allows institutions to utilize the Google/Microsoft Authenticator option for REDCap without necessarily having to offer the less secure Email option, which is often the fallback/default for when users initially log in via 2FA. In previous REDCap versions, users would have to use a 2FA option other than Google/Microsoft Authenticator the first time they logged in via 2FA. So this behavior change provides a more secure way to offer 2FA. (Ticket #141099)
- **Improvement/change:** The main Control Center page now displays a warning if REDCap recognizes that your web server and cron job are using different PHP.INI files, as this can sometimes cause undesired side effects.
- **Change/improvement:** HTML "s" strikethrough tags are now allowed in user-defined text, such as field labels, survey instructions, etc.
- **Bug fix:** When following the directions on the page "Updating your REDCap Database Tables to support full Unicode", the process might mistakenly fail due to certain MySQL/MariaDB errors occurring when attempting to convert certain characters to utf8mb4 via the UPDATE queries provided on the page. If you have attempted to use this page previously and had to stop due to these errors, then after upgrading, we recommend you try it again using the new SQL provided on that page.
- **Bug fix:** Small fixes for the page "Updating your REDCap Database Tables to support full Unicode".
- **Bug fix:** The Configuration Check page had several checks that would mistakenly fail due to language strings not being escaped. This bug was introduced in the previous version. This issue was supposedly fixed in REDCap 13.4.2, but mistakenly it was not. (Ticket #201609)
- **Bug fix:** Custom Survey Queue Text might mistakenly have many unnecessary line breaks, thus causing the text to have large, empty gaps. (Ticket #201330)
- **Bug fix:** When user privileges are edited or when users are added to a project via the CSV file upload on the User Rights page, it would mistakenly not log the individual events of each user being edited or added, respectively. (Ticket #200514)
- **Bug fix:** When the survey expiration date is saved in YMD date format on the first save of the Survey Settings page, the date format is corrupted and not saved correctly. (Ticket #201743)



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- Bug fix: If a participant is taking a multi-page public survey and uses their browser's Back button to go back to the first survey page, they then afterwards continues forward again in the survey and it would mistakenly create a duplicate response/record in the project (Ticket #142370)
- Bug fix: Vertically-aligned checkboxes (and some other elements as well) might not display correctly (or might be invisible) on survey pages while using an RTL (right-to-left) translated language via Multi-Language Management. (Ticket #201476, #200785)
- Bug fix: When taking an adaptive or auto-scoring survey that was imported from the REDCap Shared Library while the Survey Queue is being utilized, the Survey Queue might mistakenly fail to be displayed at the end of the survey or (if using auto-start) the next survey in the queue would fail to begin automatically. (Ticket #201816)
- Bug fix: When taking an adaptive or auto-scoring survey that was imported from the REDCap Shared Library while the Survey Queue is being utilized, clicking the Survey Queue icon at the top right of the survey page might mistakenly not display the Survey Queue.
- Bug fix: Floating matrix headers on data entry forms (but not on surveys) would mistakenly move too much to the right side of the page while floating.
- Bug fix: If an alert is set to be triggered during a data import, in which it will send an alert for each new repeating instance of a repeating instrument, the alert would mistakenly fail to get triggered if the imported value of the "redcap_repeat_instance" field is literally "new" rather than an integer. (Ticket #200445)
- Bug fix: If the record ID field has any kind of field validation, the validation would mistakenly fail to be enforced when renaming the record on the Record Home Page. (Ticket #200101)
- Bug fix: The "Save & Mark Survey as Complete" button on data entry forms might mistakenly be displayed in situations in which it should not. (Ticket #142863)
- Bug fix: The process that checks for errors in the REDCap database structure might have reported false positives if REDCap is running on newer MariaDB versions (10.3.37 , 10.4.27 , 10.5.18 , 10.6.11 , 10.7.7 , 10.8.6 , 10.9.4 , 10.10.2 , 10.11.0), in which the "SHOW CREATE TABLE" query in these newer MariaDB versions excludes a column's charset and collation if the column matches the default charset/collation of the table.
- Bug fix: When creating a new project via the MyCap project template, the project creation process would mistakenly update the baseline date setting configuration before updating the project configuration, thus causing some things to be out of sync with regard to MyCap settings in the project in certain cases.
- Bug fix: When using an ontology service (e.g., BioPortal) on a Text field, the cron job that sends Alerts and Automated Survey Invitations might mistakenly crash with a fatal PHP error if the field's value is piped into the email body of the Alert or ASI. (Ticket #201928)



- Bug fix: The login page for "Shibboleth & Table-based" authentication might mistakenly display both the Shib and Table-based login options under the Shib login tab. (Duplicate of the REDCap 13.4.0 (Ticket #200919))
- Bug fix: When uploading a CDISC ODM XML file of data on the Data Import Tool page, in certain situations while using PHP 8, the page could crash with a fatal PHP 8 error. (Ticket #200728)
- CDISC-related changes/improvements:
 - Created DTO (data transfer objects) for CDISC mapping to improve the code's reliability, readability, and maintainability.
 - Implemented the ability to include additional parameters in CDISC mapping using a specific syntax.
- CDISC-related bug fixes:
 - Resolved an issue where an error during FHIR authentication prevented the complete log from being displayed.
 - Fixed a bug where `fhir_identity_provider`, a CDISC setting, was not given proper priority during the FHIR authentication process.
 - Addressed a bug where the "next" page of a bundle containing too many entries could have no reference to the FHIR resource, resulting in a logging error.
- Bug fix: Some project-level pages would mistakenly appear too wide and would display a horizontal scrollbar when they should not. (Ticket #202024)
- Bug fix: When composing an invitation for a repeating survey on the Participant List page, the Compose Invitations dialog would mistakenly pre-check the checkbox of participants in the dialog's participant list in which the participant row represents a placeholder for a not-yet-existing repeating instance of the survey. In this case, users might not wish to send an invitation to these placeholders, but they exist there in the participant list just in case they do wish to invite them. So leaving them pre-checked when the Compose dialog opens could cause users to mistakenly send another repeating survey invitation to the participant when the user did not intend to do that.
- Bug fix: When two users are simultaneously on the same data entry form in a project about to create a new record, in which both users have been assigned the same tentative record name prior to the record being created, if the second user to click Submit is also locking the instrument, the second user's record would skip a number in the record creation sequence (e.g., user 1 creates record "101" while user 2 creates "103" instead of "102") while also mistakenly not locking the second user's new record. (Ticket #201814)
- Bug fix: When a repeating instrument for a record has an instance 2 but not an instance 1 saved, the left-hand instrument menu might mistakenly display a gray status icon for the repeating instrument (as if no instances exist) when viewing other instruments within the record. (Ticket #202054)



Version 13.4.2 (released on 2023-03-

24)

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CHANGES IN THIS VERSION:

- **Major bug fix:** When appending "&new" to the end of a survey URL for a repeating survey, it would mistakenly not redirect to the next not-yet-created repeating instance of the survey but would instead display the message that the survey had been completed.
- Bug fix: When using Duo two-factor authentication, REDCap would mistakenly not honor when a user checked the checkbox to not prompt for the MFA login again for 7 days. (Ticket #201444)
- Bug fix: When clicking the Check All button on the Email Users page in the Control Center, if some text had been entered into the Search filter beforehand, every user would mistakenly be selected rather than just the visible users in the table. This could cause the email to go to all users instead of just specific ones.
- Bug fix: When the REDCap API has been disabled at the system level, the Tableau Export option on the "Other Export Options" page would mistakenly still appear. (Ticket #200248)
- Bug fix: When copying a project or creating a project from a template, the creator of the project would mistakenly not have "Alerts & Notifications" privileges. (Ticket #201585)
- ~~Bug fix: The Configuration Check page had several checks that would mistakenly fail due to language strings not being escaped. This bug was introduced in the previous version. (Ticket #201609)~~

Version 13.4.1 (released on 2023-03-24)

CHANGES IN THIS VERSION:

- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered on survey pages in which a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript in a very specific way into the survey URL in order to pre-fill a Text field on the page, in which the field must have the @DEFAULT action tag and must also be piped somewhere on the current page. (Ticket #201503)
- **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 "comment" text of an uploaded file. (Ticket #200457)
- **Minor security improvement:** The "Clickjacking Prevention" feature is now always automatically enabled on the Password Recovery page (when using "Table-based" or "X & Table-based" authentication).
- **Improvement:** New option for Form Display Logic: "Hide forms that are disabled". When enabled, all forms that are disabled will



also be hidden (not visible) on the Data Collection menu and on the Record Home Page.

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- **Improvement:** The edit on the settings "Require permission making changes to existing records" is now available for translation on the Multi-Language Management page.
- **Improvement:** The Database Query Tool page in the Control Center now has a text box to easily filter database tables in the table list.
- Bug fix: The borders of table cells for tables created by the rich text editor might mistakenly be invisible when they have been set to be displayed with a border.
- Bug fix: The admin-only "auto-fill" button on surveys and data entry forms might not be located in the correct position on the page after resizing the webpage.
- Bug fix: The survey auto-continue feature might mistakenly not work with PROMIS computer adaptive test (CAT) surveys but instead would just display the text "Thank you for your interest, but you have already completed this survey". (Ticket #200757, #200621)
- Bug fix: Some matrix headers might mistakenly disappear when scrolling down on a survey or data entry form.
- Bug fix: Some dialog popups on MyCap-related setup pages might mistakenly close when clicking inside them.
- Bug fix: When using Multi-Language Management, the proper language would not get used for the e-Consent PDF in certain situations (Ticket #200944).
- Bug fix: When using Multi-Language Management, the survey acknowledgement page might not show the appropriate language.
- Bug fix: When using Multi-Language Management, the image upload and file attachment modals might not work on the MLM setup page.
- Bug fix: When a PDF file is attached to a Descriptive Text field and is set to display inline, it might not always get positioned in the correct place in the resulting PDF that is generated.
- Bug fix: When a PDF file is attached to a Descriptive Text field and is set to display inline, the inline PDF might be displayed with too low a resolution inside the resulting PDF that is generated. Its resolution has been increased from 120 DPI to 200 DPI to make it more readable. (Ticket #200582)
- Bug fix: When a PDF file is attached to a Descriptive Text field and is set to display inline, the inline PDF might mistakenly be too large for the page and might run off the page if more than one or two lines of text exist for the Descriptive Text field's field label. The resulting PDF that is generated will instead begin the inline PDF on a new page by itself in this scenario. (Ticket #200582b)
- Bug fix: The onhover action of the gear icons on the User Activity Log page in the Control Center would mistakenly not work and would not display the project title, as expected. (Ticket #200729)
- Bug fix: When clicking inside the "Preview message by record" dialog on the Alerts & Notifications page, the dialog would mistakenly close.



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- Bug fix: In a classic/non-longitudinal project, when navigating directly to a data entry form prior to choosing a record (via the form link under "Find data collection instruments" on the instrument menu), the page would mistakenly be too narrow.
- Bug fix: Small tweaks and fixes for the page "Updating your REDCap Database Tables to support full Unicode".
- Bug fix: Piping in a survey's Survey Completion Text would always fail to work. (Ticket #200909)
- Bug fix: Floating matrix headers on survey pages and data entry forms might mistakenly move all the way to the left side of the page while floating.
- Bug fix: The footer (gray box) at the bottom of all project pages might mistakenly not appear in the correct position but might be too far left. (Ticket #200912)
- Bug fix: In some situations, a required field that is embedded inside another required field hidden by branching logic might mistakenly not be able to have its value removed when a user deletes the value and then clicks Save on a survey or data entry form. The value would reappear again if the page was reloaded.
- Change: Reworded the "Tip for min/max limits" text in the Online Designer for greater clarity.
- Bug fix: In some rare scenarios when a participant submits the first page of a public survey, the page might result in a "too many redirects" error, thus preventing the user from completing the survey. (Ticket #200351)
- Bug fix: When composing a survey invitation, in which the Smart Variable [survey-link:instrument] or [survey-url:instrument] is used (i.e., with an instrument name) inside the body of the invitation, the dialog titled "Invitation text is missing [survey-link] variable" would mistakenly appear when it should not. (Ticket #200914)
- Bug fix: When submitting the first page of a public survey, in which an MDY or DMY formatted date/datetime field was submitted, the survey might mistakenly display the "invalid values entered!" dialog saying that the field's submitted value was incorrect, which is not true.
- Bug fix: Several missing LOINC codes were added to the CDIS mapping features.
- Change: Hundreds of phrases and words of static text were abstracted in the REDCap code to allow them to be translated via the Language Updater. (Thanks to Hugo Potier for all his help with this task.)
- Bug fix: Fixed typo in Multi-Language Management logEvent() method. This does not seem to affect anything though.
- Bug fix: When embedding a matrix field and using the ":icons" notation, the balloon and history icons would mistakenly not be displayed for the embedded matrix field.
- Bug fix: If a horizontally-aligned checkbox is embedded inside the choice label of another checkbox that is vertically-aligned, the first checkbox of the embedded field might mistakenly not be visible. (Ticket #201393)



Version 13.4.0 (released on 2023-03-

10)

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CHANGES IN THIS VERSION:

- **New feature: Mosio SMS Services**
 - REDCap has the capability to send SMS text messages for surveys and for Alerts & Notifications by using a third-party web service named Mosio (www.mosio.com). In this way, users can invite a participant to take a survey by sending them an SMS message, in which the data would be collected in REDCap directly from their phone without having to use a webpage. There are two ways REDCap currently works with Mosio: 1) Surveys – Sending survey invitations and also sending questions and getting replies via text message, and 2) Alerts - Sending one-way Alerts & Notifications via text message.
 - The Mosio Two-Way Text Messaging (SMS) Services work exactly the same as the current Twilio functionality, with the exception of the Voice Call features. Mosio can only send and receive SMS messages. If a user wishes to switch a project from using Twilio to using Mosio, the only thing that needs to be done is for them to get a Mosio account and API key, then disable Twilio and enable Mosio in their REDCap project using their API key. That's all that needs to be done to migrate from Twilio.
 - If you wish to disable the Mosio functionality at the system-level so that users do not see the feature on the Project Setup page, an administrator may do so on the Modules/Services Configuration page in the Control Center (similar to the Twilio settings there).
 - For more information and to get a Mosio account, visit <https://www.mosio.com/redcap> (<https://www.mosio.com/redcap>). Mosio specializes in research communications automation, helping researchers improve engagement, adherence, and data collection in studies. The service is both HIPAA and 21 CFR Part 11 compliant and willing to sign BAAs.
- **Change:** The Internet Explorer web browser is no longer supported in REDCap.
- **Change:** The third-party package named Bootstrap that is embedded inside REDCap has been upgraded from Bootstrap 4 to Bootstrap 5. Most external modules should be unaffected by this change since most of the deprecated Bootstrap 4 classes and conventions have been backported into this version to make the transition as seamless as possible.
- **Major bug fix:** If the Automatic Upgrade (blue button on the Upgrade page), Easy Upgrade, and/or Auto-Fix options are available in your REDCap installation (regardless of whether you have actually used those options or not), it could be possible for someone that is not logged in to REDCap to directly access the upgrade page of an older version sitting on the web server (e.g.,



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https://.../redcap_v11.1.0/upgrade.php) and click the blue Upgrade button for the Automatic Upgrade, which would mistakenly revert the system back to that version. Note that this would not run any other SQL but only the few queries that change the "redcap_version" in the redcap_config database table (and a couple of other minor things). If either the Automatic Upgrade or Easy Upgrade option is available on your system, then it is recommended that you additionally go and remove EVERY upgrade.php file that exists inside all previous REDCap version folders. This is just a one time thing, and is not necessary to do in the future. (Ticket #200338)

- Change: Replaced all hard-coded links to REDCap Community pages to point to the new REDCap Community website hosted on the Vanderbilt REDCap server. Previous links pointed to the old AnswerHub site.
- Change: The project PID was added to the email subject of all "Request to Move Project to Production" emails that are sent to REDCap administrators. (Ticket #76956)
- Bug fix/change: Inline PDF attachments on Description Text fields were mistakenly not being rendered as inline in PDF exports.
 - Last year when the inline PDF feature was added for attachments on Description Text fields, in which in previous REDCap versions only images could be displayed as an inline attachment on the web page and in the exported PDF file, the feature was mistakenly not fully implemented because the PDF attachment was not rendered inline inside the resulting exported PDF file for a form or survey. To fix this, any PDF attachments that are set to be displayed as inline on a Descriptive Text field will now correctly be rendered as inline in the PDF of the form/survey in order to be consistent with how inline images have always been treated in PDFs.
 - Additionally, the ImageMagick PHP extension is required for this fix to work. It is a common but not universal PHP extension. A new check has been added to the Configuration Check page to detect if this extension has been enabled on the REDCap web server, and if not, the page will provide a link with instructions for installing it, if desired.
 - NOTE: If administrators wish to disable this setting so that inline PDF attachments are not rendered as inline inside the PDF files, they may disable this functionality at the system level on the Modules/Services Configuration page in the Control Center.
- Bug fix: When the min or max validation range of a date- or number-formatted Text field contains certain Smart Variables, the min/max range check might mistakenly not work on a form or survey due to a JavaScript error. (Ticket #143298)
- Bug fix: When a user deletes all the data in a single event for a record (in the UI or via the API), the resulting logged event seen on the Logging page would mistakenly note that it happened to the first event instead of to the specified event.
- Bug fix: When the Record ID field has the @HIDDEN-PDF action tag, the field would mistakenly not get hidden in the downloaded



PDF when clicking the PDF option "This data entry form with saved data (via browser's Save as PDF)" while on a data entry form. (Ticket #1111738)

- Bug fix: While the ability for individual projects to have their own authentication method was removed in REDCap 13.1.2, this setting was mistakenly not removed from the Edit Project Settings page (in which changing its value on that page does nothing to affect anything). (Ticket #200379)
- Bug fix: When copying a MyCap-enabled project, it would mistakenly copy the MyCap tasks into the new project, even when the MyCap copy option is not checked.
- Bug fix: When migrating a project using the MyCap external module to begin using the native MyCap feature, the migration process might mistakenly not process certain MyCap tasks correctly that were not adequately enabled in the MyCap EM.
- Bug fix: The Smart Variables [survey-time-started], [survey-date-started], [survey-time-completed], [survey-date-completed], [survey-duration], [survey-duration-completed] might mistakenly return the value for record "1" in a project (if record "1" exists) when these Smart Variables are used in a calculated field, @CALCTEXT field, or branching logic on the first page of a public survey. These would, however, work correctly if used in a field label, choice label, etc., if used on a non-public survey, or if used on survey page 2 or higher of a public survey.

Version 13.3.4 (released on 2023-03-03)

CHANGES IN THIS VERSION:

- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered in the @CALCTEXT action tag in which a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript in a very specific way inside the text of the @CALCTEXT action tag.
- **Minor security fix:** An SQL Injection vulnerability was found on the Database Activity Monitor page, in which a malicious user could potentially exploit it by manipulating an HTTP request on another page while an administrator views the Database Activity Monitor page.
- Change: HTML "style" tags are now allowed in user-defined text, such as field labels, survey instructions, etc.
- Change/improvement: On the Calendar page, the year selection drop-down list now extends to 10 years in the future by default, and if the year is changed via the drop-down, the drop-down's option will extend to 10 years in the future of either the current year or the selected year (whichever is largest). (Ticket #143067)
- Bug fix: Several missing LOINC codes were added to the CDIS mapping features.
- Bug fix: When REDCap is sending a confirmation email to a survey participant after completing a survey, it might mistakenly cause a fatal PHP error on the page. (Ticket #143145)



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- Bug fix: When piping a File Upload field with “:link” or “:inline” in the body of outgoing emails (e.g. alerts, ASIs), the piping would mistakenly not be successful under certain circumstances. (Ticket #142658)
- Bug fix: The Stats & Charts page might mistakenly crash in certain situations due to a fatal PHP error when using PHP 8. (Ticket #143019b)
- Bug fix: When using Multi-Language Management, in which an Automated Survey Invitation has been translated, the ASI might mistakenly not be sent in the desired language when there are conflicting things (or none) dictating what the language should be for the ASI. To prevent this issue regarding language ambiguity in ASIs, a new MLM setting had to be added to allow users to define the language source of a given ASI at the survey level (but not at the survey-event level), in which users may choose the “Language preference field” or “User's or survey respondent's active language” as the ASI Language Source on the MLM setup page. (Ticket #143119)
- Bug fix: When using Multi-Language Management, in which an Automated Survey Invitation has been translated, the ASI might mistakenly be sent out in the fallback language in some cases. (Ticket #143119b)
- Bug fix: Any HTML tags used inside the equation of a @CALTEXT field would mistakenly not display correctly in the View Equation popup on data entry forms. (Ticket #143228)
- Bug fix: An issue specific to PHP 8.1 might cause some features of the Clinical Data Mart to crash with a fatal PHP error.
- Bug fix: When using comments in calculations or logic, if the comment contained a quote or apostrophe, it would mistakenly get included in the check to ensure that there is always an even number of quotes/apostrophes in the calculation/logic. This would sometimes throw an error and prevent users from being able to add or edit the calc/logic. (Ticket #143367)
- Bug fix: Large configurations for Multi-Language Management might mistakenly get truncated in the database when saved. The configuration columns in the MLM database tables were increased to handle this. (Ticket #143355)
- Bug fix: The embedded PDF on the e-Consent certification page of a survey with the e-Consent Framework enabled would mistakenly look squished (have incorrect dimensions) when taking the survey on an iPad. (Ticket #143212)
- Bug fix: In some cases after a participant has completed a survey, if they return to the survey using a private survey link (i.e., not a public survey link) while the survey has “Save & Return Later” disabled, the participant might mistakenly be allowed to modify the existing survey response. (Ticket #143400)

Version 13.3.3 (released on 2023-02-24)

CHANGES IN THIS VERSION:



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- **Major bug fix:** On public surveys where the participant fails to enter a value for a required field on the first page of the survey, in which the survey page has dozens of required fields, the survey page might mistakenly crash with an HTTP 414 error (URL Too Long) after being submitted, thus preventing the participant from completing the survey. Bug emerged in REDCap 13.1.11 (LTS) and 13.3.0 (Standard). (Ticket #142829)
- Bug fix: The Azure AD (V1) authentication was mistakenly displaying "samAccountName" as an option to use for "AD attribute to use for REDCap username" when instead it should have been using "onPremisesSamAccountName". (Ticket #134789)
- Bug fix: When re-evaluating an Automated Survey Invitation for a repeating survey that has been set up with a repeating ASI, the re-evaluation process might report that some invitations were scheduled when they were not.
- Bug fix: In some cases, images that were added via the rich text editor to a project dashboard, to custom text on a report, or to survey components (instructions, questions, etc.) would mistakenly not display on the public version of the dashboard, on a public report, or on the survey, respectively, unless the person viewing it was currently logged in as a REDCap user. (Ticket #142302)
- Bug fix: If Automated Survey Invitations have been set up for a survey, in which some invitations have already been scheduled for a record, if the survey instrument gets marked as "Complete" via normal save operations on the data entry form (with the exception of clicking the "Save & Mark Survey as Complete" button), the scheduled invitations would mistakenly get automatically deleted. They should only get deleted if the survey has been completed via the survey page or by a user clicking the "Save & Mark Survey as Complete" button on the data entry form. Bug emerged in REDCap 9.3.7. (Ticket #142989)
- Bug fix: When creating a Table-based authentication user or when adding a user to a project, if the username that was entered contained illegal characters, the error message would fail to note that the @ symbol is allowed in usernames. (Ticket #142999)
- Bug fix: The Stats & Charts page might mistakenly crash in certain situations due to a fatal PHP error when using PHP 8. (Ticket #143019)
- 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 #143003)
- Bug fix: The admin detection on survey pages might mistakenly fail in certain situations and thus fail to display the "Auto-fill survey" link at the top-right of a survey page whenever an administrator is viewing the survey.
- Bug fix: When piping instance-related Smart Variables into the email text of a survey's Confirmation Email, the resulting piped text might mistakenly not be formed correctly. For example, appending [new-instance] to the [survey-link] Smart Variable, in



which survey-link contains custom display text, would output the survey URL instead of the survey link with the custom text. (Ticket #143049)

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Version 13.3.2 (released on 2023-02-17)

CHANGES IN THIS VERSION:

- Bug fix: When a record is correctly assigned to a Data Access Group, it might not appear to be assigned to its DAG while viewing the Record Status Dashboard, the Add/Edit Records page, and reports if data values for the record somehow got stored incorrectly in the backend redcap_data table in multiple/mixed cases (e.g., "101a" vs "101A"). Un-assigning and then re-assigning the record back to its original DAG might fix this issue temporarily, but the bug would arise again whenever the project's internal "Record List Cache" was cleared/rebuilt. (Ticket #141329, #142544) NOTE: If the issue still exists after the upgrade, click the "Clear the Record List Cache" button on the Project Setup->Other Functionality page.
- Bug fix: When exporting CSV files in various places throughout REDCap, the process might mistakenly fail for PHP 8 under specific unexpected conditions.
- Bug fix: The cron job used for the Clinical Data Mart or Clinical Data Pull might mistakenly fail due to the user ID being used instead of the username when creating a new instance of the job.
- Bug fix: Over 20 missing LOINC codes were added to the CDIS mapping features.
- Bug fix: The "resources" link in the MyCap informational dialog on the Project Setup page mistakenly pointed to the wrong URL. (Ticket #142514)
- Bug fix: The CSV file upload for importing Automated Survey Invitations (ASIs) in the Online Designer would mistakenly fail with an error if the user's preferred CSV delimiter was not set to "comma" via their user profile. (Ticket #142555)

Version 13.3.1 (released on 2023-02-10)

CHANGES IN THIS VERSION:

- Change/improvement: Added a new internal service check to the Configuration Check page that checks REDCap's ability to make server-side HTTP calls to its own survey end-point. For some server/network configurations, this kind of HTTP call was failing silently and causing some survey pages to timeout sporadically. This check will help administrators become aware of this issue if it exists.
- Bug fix: When performing certain actions in the File Repository, such as uploading files, an error message would mistakenly be



displayed afterward saying that there is a DataTables warning.

Bug emerged in REDCap 13.3.0 (Standard).

- Bug fix: When using the page "Updating your REDCap Database Tables to Support Full Unicode", some REDCap installations (depending on their specific database configuration) might experience a few minor SQL errors during the unicode transformation process.
- Bug fix: The "System Statistics" page in the Control Center did not display the label correctly for the count of projects utilizing the Clinical Data Pull feature.
- Bug fix: Data values imported for a patient's "birth-sex" via FHIR using the Clinical Data Operability Services might mistakenly get converted into an incorrect value ("UNK") in some specific cases. (Ticket #141976)
- Bug fix: If using the e-Consent Framework with the setting "Allow e-Consent responses to be edited by users?" enabled, users with edit privileges would mistakenly be prevented from modifying the data on the consent form via a data import. (Ticket #140846)
- Bug fix: The Survey Queue page might crash due to a fatal PHP error when using PHP 8. (Ticket #142125)
- Bug fix: When using the @RICHTEXT action tag on a Notes field, changing the text in the editor (i.e., the field's value) might mistakenly not trigger calculations or branching logic accordingly. (Ticket #142127)
- Bug fix: When using the rich text editor to translate a survey's survey instructions on the Multi-Language Management setup page, any images uploaded via the rich text editor would mistakenly not load when viewing the translations on a survey page (that is, unless the person viewing the survey is a REDCap user and is currently logged in to REDCap). (Ticket #141658b)
- Bug fix: If a user that has "read-only" user privileges for a specific instrument is viewing the Data History of a File Upload field on that instrument, the "Delete" link next to each file/revision would mistakenly be displayed in the Data History popup. Users with read-only instrument-level privileges should not be able to delete older revisions of a File Upload field. (Ticket #141709)
- Bug fix: If a repeating instrument has been enabled as a survey, but the survey setting "(Optional) Repeat the survey" has not been enabled on the Survey Settings page, then when viewing the participant list, a placeholder instance might mistakenly not be displayed in the participant list to represent a not-yet-taken instance of the repeating survey. There should always be at least one untaken placeholder instance displayed for each record in the participant list for repeating surveys because this allows users to open a new instance of the survey or email the participant a link to that new survey instance. (Ticket #141545)
- Bug fix: When creating/editing a report, the explanatory dialog for Step 3's "Show data for all events for each record returned" checkbox was outdated and mistakenly did not mention anything about the setting's usage in projects containing repeating instruments/events. (Ticket #141953)



- Bug fix: When the "Text-To-Speech" feature is enabled on a survey, the speaker buttons would mistakenly not appear next to the field labels or fields in a matrix, thus preventing all users from utilizing the feature there. (Ticket #141717)
- Bug fix: In very specific situations where a field is a required field and is embedded in another field, in which the container field is hidden by an @HIDDEN action tag while the field embedded inside it also has an @HIDDEN action tag, the user would mistakenly get prompted by the Required Field dialog for a hidden embedded field if the container and/or embedded fields have @HIDDEN-SURVEY while on a data entry form *or* if they have @HIDDEN-FORM while on a survey page. (Ticket #142212)
- Bug fix: If a whole record has been locked or if a data entry form has been locked for a given record, any survey participant who happened to have opened their survey prior to the record/instrument being locked would mistakenly still be able to submit and save their survey response, and as a result, possibly overwrite any existing data on the locked record/form. (Ticket #139555)
- Bug fix: When downloading a data dictionary or an instrument zip file, any Dynamic Query (SQL) fields that contain "\\n" in their SQL query would mistakenly have the text "\\n" replaced with "|" in the resulting downloaded file. (Ticket #141734)

Version 13.3.0 (released on 2023-02-02)

CHANGES IN THIS VERSION:

- **New feature:** Administrators will now see an "Auto-Fill Form" or "Auto-Fill Survey" button at the top right of forms and surveys, respectively. Clicking the button will auto-fill all visible fields on the entire instrument. This is to help with testing or troubleshooting data collection.
- **New feature:** Embedding file attachments in text & emails
 - Users may now attach one or more files into the text of a survey invitation, an alert, or a field label on a form/survey, among other things, by clicking the file attachment (paperclip) icon in the rich text editor and then by uploading a file from their local device.
 - This feature is available for every rich text editor *with the exception* of non-project pages (e.g., the Email Users page) and also any field with the @RICHTEXT action tag.
 - If administrators wish to disable the ability to embed attachments in text via the rich text editor, they may disable this functionality at the system level on the Modules/Services Configuration page in the Control Center. Note: This setting operates independently from the other setting "File Repository: Users are able to share files via public links" (found on the File Upload Settings page in the Control Center); thus, even if public file sharing has been disabled globally, users can still upload file attachments via the rich



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text editor so long as its associated setting has been enabled globally.

Note: All files uploaded via the rich text editor will be represented in the text of the editor as a public file sharing link, which allows the file to be downloaded in any context (e.g., on surveys, on authenticated REDCap pages, and in public areas like emails and public dashboards). This means that if anyone has possession of this link, they will be able to download the file (at least, until the file has been deleted). All files uploaded via the rich text editor will be automatically stored in a special "Miscellaneous File Attachments" folder in the File Repository where they can be accessed and/or deleted, if necessary. If any such file is deleted from the "Miscellaneous File Attachments" folder in the File Repository, the associated download link for the file will cease to be active and thus will become a dead link wherever it has been used.

- **Improvement:** A new "preformatted code block" button was added to the toolbar of all rich text editors.
- **New feature:** New one-way messaging system for Clinical Data Interoperability Services (CDIS) that is designed to provide secure communication to users who are utilizing asynchronous CDIS processes, such as background data pulling via a cron job. This new system has been developed to address the need for a secure means of communication outside of REDCap Messenger, particularly for messages that contain protected health information (PHI). Emails were not a viable option for these types of messages, as they do not provide the necessary level of security to protect PHI from unauthorized access. The system utilizes encryption techniques to ensure the confidentiality and integrity of all messages exchanged.
- Bug fix: When using comment lines inside the Field Annotation for a @CALCTEXT field, Data Quality rule H would mistakenly not perform the calculation successfully. (Ticket #141558)
- Various updates and fixes for the External Module Framework.
- Bug fix: Fixed PHP 8 related error when an administrator tries to hide the blue Easy Upgrade box in the Control Center. (Ticket #141539)
- Bug fix: When using "now" as the min/max for a date field or using "today" as the min/max for a datetime field, the validation range check would mistakenly not detect an out-of-range value. (Ticket #141646)
- Bug fix: When using the rich text editor to translate a label on the Multi-Language Management setup page, the image icon was mistakenly missing from the editor's toolbar interface, thus preventing users from uploading alternative images into the translated text.
- Bug fix: When using the rich text editor to translate a label on the Multi-Language Management setup page, any images uploaded via the rich text editor would mistakenly not load when viewing the translations on a survey page (that is, unless the person



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viewing the survey is a REDCap user and is currently logged in to REDCap). (Ticket #141658)

• Bug fix: When a survey participant enters data on a public survey in which some required fields are left blank, it is possible for the participant to re-submit the page in the browser (via the browser Back/Reload button) and thus cause duplicate records to be created. This can especially happen for certain browsers, such as Mobile Safari on iOS devices, when minimizing the browser and then re-opening the browser later. (Ticket #141012)

Version 13.2.5 (released on 2023-01-27)

CHANGES IN THIS VERSION:

- **Improvement:** Comment lines can be added to calculations and logic to serve as annotations to explain various parts of the logic/calc. Thanks to Günther Reznicek for helping add this new feature.
- **Improvement:** When setting up the Survey Queue or an individual Automated Survey Invitation, the survey drop-down for the "When the following survey is completed" setting in the dialog now has a built-in search feature to easily find a specific survey in a long list. Additionally, if the survey title does not match the instrument title, the drop-down list will also display the user-facing form name for the survey, which should help users find the right survey quicker in certain cases.
- Bug fix: In some cases, images that were added via the rich text editor to a project dashboard would mistakenly not display on the public version of the dashboard unless the person viewing it was currently logged in as a REDCap user.
- Updates for the External Module Framework, including: 1) Added arguments allowing `$module->getProjectsWithModuleEnabled()` to return projects in analysis/cleanup status and with completed dates, and 2) Miscellaneous scan script updates and unit test updates.
- Bug fix: When creating a project using the MyCap project template included in REDCap, in some cases the resulting project might result in errors when a participant loads the project on their MyCap mobile app.
- Bug fix: A fatal PHP error might occur for PHP 8 on a project using the Clinical Data Pull feature, in which a user clicks the "Delete data for THIS FORM only" button at the bottom of a data entry form. (Ticket #141230)
- Bug fix: When using Clinical Data Pull and launching the CDP REDCap page embedded inside of Epic Hyperspace (this does not affect other EHRs but only Epic), the embedded page would not function correctly due to incompatibilities with Internet Explorer, which is the embedded browser utilized by Hyperspace. This bug emerged in the previous REDCap version.
- Bug fix: When exporting a project's data to SAS, in which the project is using Missing Data Codes and also the exported data



- set contains Text or Notes fields, the resulting SAS syntax file might mistakenly be missing an underscore at the end of the variable name for the "format" attribute to the external note fields. (Ticket #141312)
- Bug fix: The replacement function `utf8_encode_rc()` for PHP's `utf8_encode()` might prevent certain users from logging in successfully, in which this ultimately is caused by certain unknown web server configurations. (Ticket #140393)
 - Bug fix: When using the Randomization page while a project is in production status, a REDCap administrator is unintentionally able to erase the randomization model of the project, which should only be allowed while in development status (even for admins). The "Erase randomization model" button will now stay disabled for everyone when a project is in production. (Ticket #141286)
 - Bug fix: If a required field's field label contains a lot of HTML, in which the field value is left empty when submitting a survey page or data entry form, the "Some fields are required" dialog that is displayed would mistakenly not look correctly on some occasions due to the HTML in the label. To prevent this issue and to make the field label more readable, the required field dialog will now strip all HTML from the field label when displaying it. (Ticket #141262)
 - Bug fix: Bug fix: When MyCap is enabled in a project, on some rare occasions when migrating a project using the MyCap external module, the process might fail due to an SQL error. (Ticket #138168b)
 - Bug fix: Importing data for a patient's race via Clinical Data Interoperability Services (CDIS) might mistakenly fail in cases where the patient has more than one race listed in the EHR.
 - Bug fix: When a user is viewing the field drop-down for the Data Search feature on the Add/Edit Records page in a project that has more than 20K records, the note text in the first option of the field drop-down would mistakenly be truncated, thus preventing the user from being able to read it. (Ticket #141317)
 - Bug fix: When uploading a CSV file of user privileges on the User Rights page, the "lock_records" privilege would mistakenly return an error if its value is set to "2", which is a valid value. (Ticket #141141)
 - Bug fix: When changing an existing alert from sending "immediately" and "every time" to sending not immediately (e.g., "Send on next X at time Y") without explicitly clicking the "Just once" radio option in Step 2B after doing so, these changes made to Step 2 would mistakenly not get saved when saving the alert. (Ticket #140491)

Version 13.2.4 (released on 2023-01-20)

CHANGES IN THIS VERSION:

- **Improvement:** When using the built-in MyCap feature, users can now explicitly define the title of the project as seen by



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participants in the MyCap Mobile App. A new button has been added near the top of the "MyCap App Design" to allow users to set the project title that is displayed in the app. If not defined, it would default to using the user-facing title of the REDCap project, which was how it behaved in previous versions of REDCap.

- **Major bug fix:** In certain situations where survey invitations get scheduled for a repeating Automated Survey Invitation, in which the record's data is later modified, the repeating invitations that were scheduled might mistakenly get unscheduled. (Ticket #140851)
- **Major bug fix:** If a user is creating a new record on a data entry form, in which record auto-numbering is enabled in the project and the form is submitted by the user with a required field that has no value, if the project's internal Record List Cache (a secondary list of records in the database for improving performance) had not been built yet or was recently cleared (which is done automatically by REDCap internally), the user submitting the form might trigger the Record List Cache building process, which might inadvertently create multiple identical records instead of just creating the one record.
- **Bug fix:** If a checkbox field has a large amount of choices, thus causing the checkbox options to become a scrollable box, the overall height of the scrollable box would mistakenly be too short on surveys that have the "Enhanced radio buttons and checkboxes" feature enabled. Since the enhanced radios/checkboxes are much larger than regular radios/checkboxes, the scrollable area has been made twice as tall in these cases in order to provide a less confusing user experience to survey participants.
- **Bug fix:** The Multi-Language Management page in the Control Center might incorrectly denote a translated language as being 100% complete when it is only 99.9% complete. (Ticket #140724)
- **Bug fix:** Various issues related to checkbox fields with many options, such as displaying a horizontally-aligned checkbox field as too wide in Firefox. Also, the new feature added in the previous version that would cause a long list of checkbox options to become scrollable has now been completely removed since so many users complained about it being problematic for them. (Ticket #140759)
- **Bug fix:** When piping a Notes field that has the @RICHTEXT action tag, the HTML formatting in the field's value might mistakenly not render correctly on the page, especially if the value contains HTML tables. (Ticket #140910)
- **Bug fix:** When a datetime field is using "now" as the min or max validation range, and the user clicks the "Now" button next to the field after having been on the page for more than one minute, the "out of range" popup would mistakenly display.
- **Bug fix:** When using Multi-Language Management, if some slider fields do not have their slider label values translated, it could cause some parts of the survey page or data entry form not to display all its translated text successfully. (Ticket #140871)



- Bug fix: Some LH-aligned radio buttons might mistakenly cause the page to be too wide if a radio choice label is very long. Unfortunately, the only way to fix this issue fully is to revert a change in the previous version that improved the text wrapping of the choice labels of horizontally-aligned checkbox fields.
- Bug fix: If a survey participant clicks the "Save & Return Later" button on a survey, which has no survey title (i.e., it was left blank), the email sent to the participant might be slightly confusing because it displays only two double quotes where the survey title should be. It now displays slightly different text if the survey title has not been defined.
- Bug fix: If a project title contains some UTF-8 encoded characters, the project title would mistakenly display as garbled when viewing it on the My Projects page on a mobile device. (Ticket #140814)
- Bug fix: If a repeating Automated Survey Invitation has reminders enabled, the Survey Invitation Log might mistakenly display a bell icon and number (representing a reminder) next to a recurring invitation that is not actually a reminder.
- Bug fix: When using the Randomization page and downloading an example allocation table in Step 2, for certain randomization models, the CSV file produced may become too large to be processed, which might throw an error, and/or it might take an abnormally large amount of time to output the CSV file. To prevent these situations, the example allocation tables now will only output a maximum of 50,000 rows regardless of the randomization model set up in the project. (Ticket #140909)

Version 13.2.3 (released on 2023-01-13)

CHANGES IN THIS VERSION:

- Bug fix: If a Project Template has Form Display Logic, new projects created from that Project Template would mistakenly not have the Form Display Logic settings copied over. (Ticket #140489)
- Bug fix: If REDCap is using an external file storage method (e.g., AWS S3, Azure Blob Storage) for storing all files in the system, the Project Revision History's version comparison feature would mistakenly fail, and it would result in a fatal PHP error when using PHP 8. (Ticket #140551)
- Bug fix: If a participant email address contains one or more capital letters and is added manually to the Participant List multiple times, the Participant List would mistakenly fail to display a number and parentheses immediately before the email address on each row (e.g., "1) rob@aaa.com (<mailto:rob@aaa.com>)") to help differentiate the multiple instances of the same email address. (Ticket #140466)
- Bug fix: When using Duo two-factor authentication, some important debugging information would mistakenly not get output to the page when an error occurred, in which it prevented



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admins from effectively troubleshooting certain network-based configuration issues that could cause Duo not to work dependently for users.

- Bug fix: If a checkbox field has a large amount of choices, it could cause the field to mistakenly take up a disproportionate amount of the survey page or data entry form, thus resulting in a bad user experience. In this case now, the whole list of checkbox options will instead become scrollable so that the checkbox field does not become too unwieldy while still allowing the user to see all the choices.
- Bug fix: Checkbox fields that are horizontally-aligned might mistakenly have a choice's checkbox and its label appear on two different lines due to text wrapping. Instead, an individual choice's checkbox and label now no longer wrap to the next line but instead stay together on the same line. (Note: This fix does not apply when viewing a form/survey on a mobile device.)
- Bug fix: In very specific situations where a field is a required field and is embedded in another field, in which the container field is hidden by an @HIDDEN action tag while the field embedded inside it does not have an @HIDDEN action tag but does have a @DEFAULT action tag, the default value added to the embedded field via the @DEFAULT action tag would mistakenly not get saved when saving the page.
- Bug fix: Various fixes related to issues with using Duo two-factor authentication, including issues caused by the use of a proxy with the REDCap web server. (Ticket #140186, #137099)
- Bug fix: Clicking the "View Equation" link for a @CALCTEXT field on a data entry form or survey page while the project is in production status but not in draft mode would mistakenly display an error message instead of displaying the calculation. (Ticket #140645)
- Bug fix: When downloading a CSV file of either users or user roles on the User Rights page, the form-level viewing rights and form-level export rights in the CSV file might mistakenly contain instruments that have been deleted from the project. (Ticket #140668)
- Bug fix: If PDF files had been stored in the File Repository's "PDF Survey Archive" folder, after which the Auto-Archiver and/or e-Consent Framework had been disabled for all surveys in the project, the "PDF Survey Archive" folder would mistakenly no longer be visible in the File Repository, thus preventing users from accessing previously-saved files. That folder will now be displayed if the Auto-Archiver and/or e-Consent Framework is enabled or if any files already exist in the folder. (Ticket #140435)

Version 13.2.2 (released on 2023-01-06)

CHANGES IN THIS VERSION:

- Bug fix: In certain situations in which REDCap or an External Module executes a specific parameterized query to the database,



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- the query might mistakenly fail due to an "illegal mix of collations"
- Bug fix: Unless using the latest version of the REDCap Mobile App, @CUMCTESTell might mistakenly not function correctly in the Mobile App if its calculation contains multiple nested IF() statements.
- Bug fix: When a participant is viewing their survey queue, if they click the "Get link to my survey queue" button and then click "Send" to email the survey queue link to themselves, the Email Logging page would mistakenly not associate the email with a record in a project when searching for emails on that page. This can make it very difficult to find this email via the Email Logging page. In the future, this action will associate the email with a specific record on the Email Logging page.
- Bug fix: A SQL query might mistakenly not get formatted correctly and thus might fail when CDIS is sending a notification to a user via REDCap Messenger regarding the completion of an asynchronous CDIS task.
- Bug fix: The "How do I format the equation?" link in the "Edit Field" dialog in the Online Designer would mistakenly open the wrong question on the "Help & FAQ" page.
- Bug fix: If a user assigned to a Data Access Group views a report that has DAG filtering imposed via "Step 3: Additional Filters" in the report settings, in which the user's DAG is not one of the selected DAGs of the Additional Filters, the report might mistakenly display some records from the user's DAG when instead it should not return any records in the report. A similar behavior might also occur for a user that is not assigned to a DAG when viewing the same report, but instead occurring when using the DAG Live Filter to select a DAG that is not one of the selected DAGs of the Additional Filters. (Ticket #140302)

Version 13.2.1 (released on 2022-12-29)

CHANGES IN THIS VERSION:

- Major bug fix:** If using AAF authentication or any of the "X & Table-based" authentication methods (excluding "LDAP & Table-based"), the login process might not function correctly and might appear as if the authentication has mistakenly reverted to only "Table-based" authentication. Bug emerged in REDCap 13.2.0 (Standard). (Ticket #140065)
- Bug fix: Certain Font Awesome icons might mistakenly not display correctly on survey pages.

Version 13.2.0 (released on 2022-12-29)

CHANGES IN THIS VERSION:



- **New feature: "Azure AD & Table-based" authentication method** - The "Security & Authentication" page contains a section of custom settings for using the Azure AD authentication method on REDCap. All the existing Azure AD settings apply to this new authentication method, with the addition of a new custom button text for the "Azure AD" button on the login page.
- **Important change:** New option displayed on the Configuration Check page to update the REDCap database tables to **support full Unicode**. REDCap installations that were initially installed using a version prior to REDCap 8.5.0 will have an older, legacy type of database collation/encoding and charset (character set). If your REDCap installation is affected, it is **highly** recommended that you follow the steps detailed on the page that is linked on the Configuration Check page in order to update your database. Please note that this is NOT an urgent issue, but it is something we recommend you address sooner rather than later since your current database collation and charset (UTF8 or UTFMB3) have been deprecated in the latest versions of MySQL/MariaDB and thus will eventually be removed altogether in future versions of MySQL/MariaDB. The full process of updating your database tables may take many minutes or possibly hours to run all the pertinent SQL to convert both the table structure and table data. Please follow the instructions on that page carefully, and make sure you perform a database backup before starting the process. (Thanks to Tony Jin for his help with this effort.)
- **Important change:** Dropped support for PHP 7.2. Only PHP 7.3.0 and higher are now supported in REDCap.
- Bug fix: The user privilege for "Alert & Notifications" was mistakenly not getting copied for project users when using the "Copy Project" feature while electing to copy the current users into the new project. (Ticket #140023)
- Bug fix: The Cron Jobs page in the Control Center might crash with a fatal PHP error for certain versions of PHP if the "exec" function is disabled in PHP as a "dangerous" function on the REDCap web server. (Ticket #140034)

Version 13.1.4 (released on 2022-12-28)

CHANGES IN THIS VERSION:

- **Improvement:** The "Help & FAQ" page has been updated with new content (thanks to the FAQ Committee).
- Bug fix: When the system-level setting "Allow reports to be made 'public?'" has been set to "No", administrators are still allowed to make reports public, which is expected; however, when anyone attempts to view the report using the public link, it displays an error saying that it cannot be displayed. Anyone with the public link should be able to view the report. (Ticket #132901b)
- Bug fix: When testing a calculation using the "Test calculation with a record" drop-down for a calculated field in the "Edit Field" popup on the Online Designer, there are certain situations where



the process might mistakenly crash with a fatal PHP error when using PHP 8. (Ticket #139955)

- Bug fix: If the value of the text or notes field contains a null character that is immediately followed by a line break carriage return, the email address would mistakenly not get converted into a "mailto" link properly when displayed on a report. (Ticket #139960)
- Bug fix: The user privilege for "Alert & Notifications" was mistakenly not getting copied for project users when using the "Copy Project" feature while electing to copy the current users into the new project. (Ticket #140023)
- Bug fix: Text describing that piping can now be used in the URL of a Data Entry Trigger and the URL of an external video for a Descriptive Text field was mistakenly not added in the previous version. It has now been added in order to inform users that piping can be used in these places now.

Version 13.1.3 (released on 2022-12-22)

CHANGES IN THIS VERSION:

- **Major bug fix:** An error would occur when enabling External Modules on PHP 7, thus preventing modules from being successfully enabled. Bug emerged in REDCap 13.1.2 (Standard).

Version 13.1.2 (released on 2022-12-22)

CHANGES IN THIS VERSION:

- **Improvement:** Users may now pipe Smart Variables or field variables into the Data Entry Trigger URL.
- **Improvement:** Users may now pipe Smart Variables or field variables into the External Video URL for Descriptive Text fields.
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered on the User Rights page where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way inside a CSV file when importing user privileges or user roles on that page.
- **Change:** PHP 8.2 is now supported in REDCap. Note: The release notes of REDCap 13.1.0 (Standard) mistakenly noted that PHP 8.2 was supported in REDCap 13.1.0, which was only partially true because PHP 8.2 was not yet supported by the External Module Framework, which is a part of REDCap.
- **Change:** REDCap no longer supports individual projects having their own authentication method that is different from the system-level authentication method. Going forward, every project will automatically assume the same authentication method of the system as defined on the "Security & Authentication" page in the Control Center. (Note: The "auth_meth" column name in the "redcap_projects" database table has not been removed in order



to be backward compatible with any custom scripts that might be specifically querying that column in an SQL query.)

- **Improvement:** When setting up an alert, Step 2 (Sub-Options) "When to send the alert" now contains the new drop-down choice "the day (beginning at midnight) that the alert was triggered" in the sub-option "Send the alert X days Y hours Z minutes before/after [drop-down]". This new choice in the drop-down allows users to schedule the notification based on the day the alert was triggered and provides greater control and precision with regard to when exactly the notification will be sent. For example, if this new drop-down option is selected along with setting it to "send the alert 1 day 8 hours after...", this will cause the notification to be scheduled to be sent at exactly 8:00am the next morning. In previous versions, it was not possible to get this level of precision for the notification send-time based upon the alert trigger-time unless you used a date field's value as a reference. (Note: This new option is very similar to the one added for Automated Survey Invitations in REDCap 12.5.0.)
- **Improvement:** When exporting the project logging via CSV file or via API, the record name is now included as a separate column/attribute "record" in the resulting output if the logged event is record-centric (and if not, the record value will be left blank). (Ticket #132246)
- **Improvement:** The on/off switches on the Multi-Language Management setup page now have green/red coloring to more clearly denote their on/off state. (Ticket #139703)
- Various changes and improvements for the External Module Framework:
 - PHP 8.2 is now supported.
 - Added the methods `$module->disableModule()`, `$module->isSuperUser()`, and `$module->escape()`.
 - Added the allow-project-overrides and project-name setting options.
 - New feature to hide external modules from non-admins in the list of enabled modules in a project.
 - Made the scan script warn when system hooks are used.
 - Miscellaneous scan script improvements.
 - Fixed a bug where escaped HTML displays in field list values.
- **Change/improvement:** The Database Activity Monitor page now specifies if a specific request is an instance of the REDCap cron job.
- **Change/improvement:** When a user creates, edits, copies, or deletes a report, the logged event of this specific action now contains the list of all fields in the report. This improves the granularity of the audit trail for reports. (Ticket #139193)
- **Bug fix:** In very specific cases when a report is set to only display the record ID field, in which the report has filter logic that contains fields on a repeating instrument/event, the resulting report might mistakenly include grayed out columns that correspond to the fields (or to the form status fields of the fields' instrument) that are used in the filter logic. (Ticket #139584)



- Bug fix: Users with instrument-level locking privileges could inadvertently bypass locking controls and modify data on a locked data entry form if they have another browser tab open with the same data entry form before it was locked, and then saved that form within 30 seconds of locking the form in the other tab. (Ticket #139555)
- Bug fix: If Two-Factor Authentication is enabled in REDCap, and a user is using Clinical Data Pull, in which they are viewing a REDCap window specifically inside Epic Hyperspace, a JavaScript error might be displayed on the page. Bug was introduced in REDCap 12.5.7. (Ticket #139775)
- Bug fix: If a project is created using a Project XML file, in which the XML file contains public reports, the unique public report link/hash of any public reports in the original project would mistakenly get duplicated and attributed to the newly created project. This would not cause any noticeable problems for the user because the public report link would always point to the original project and not to the new project created.
- Bug fix: When using the Clinical Data Mart, a patient's Medical Record Number (MRN) might get stored as an empty string in the FHIR logs table, thus causing the Data Mart to crash.
- Bug fix: REDCap might fail with a fatal PHP error on various pages when using PHP 8 under very specific conditions. (Ticket #139416)
- Bug fix: If a user shared a public link to a file in the File Repository, that public link would still be functional and active even after an administrator has disabled the "File Repository: Users are able to share files via public links" setting in the Control Center. (Ticket #139899)
- Bug fix: The @IF action tag would mistakenly not function correctly for fields in PDF exports. For example, @IF([field]="", @HIDDEN-PDF, "") would not function correctly to show/hide the field in the resulting PDF export.

Version 13.1.1 (released on 2022-12-16)

CHANGES IN THIS VERSION:

- **Improvement:** Descriptive Text fields can now have inline PDF attachments that display as an embedded PDF on the page (rather than just displaying a download link).
- Change: HTML tags are no longer stripped out of Project Dashboard titles as displayed in the "My Project Dashboards" list on the left-hand menu or on the Project Dashboards page. Additionally, the title of Project Dashboards are no longer limited to 150 characters.
- Bug fix: The "Data Collection Strategies for Repeating Surveys" informational dialog would mistakenly not open.
- Bug fix: A fatal PHP error would occur when using DDP Custom in a project for PHP 8. (Ticket #138771b)



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- Bug fix: When using MyCap in a project and with a Custom Participant Label that utilizes the naming of fields (rather than selecting a single field from the field drop-down menu), the Custom Participant Label would mistakenly not be displayed on the MyCap Participant List page.
- Bug fix: If a user is adding an external video URL to a Descriptive Text field, in which they mistakenly paste some Embed HTML or an invalid URL into the field's video URL attribute, if REDCap doesn't recognize it as a Vimeo or YouTube link, REDCap might mistakenly try to output the text directly onto the page as-is without verifying that it is a valid URL. (Ticket #139291)
- Bug fix: When using the date/time picker widget to select a value for a date or datetime field on a survey page or data entry form, and then later on the same page the user uses the time picker on a "Time (HH:MM)" or "Time (HH:MM:SS)" validated field, after selecting the value for the Time field, the page would mistakenly scroll back to the last date/time field on that page where the date/time picker was used, which could be very confusing and disorienting to the user. (Ticket #139201)
- Bug fix: The Standalone Launch process for Clinical Data Interoperability Services might mistakenly fail for some server configurations due to a duplicate slash ("/") in the link to the page.
- Bug fix: When a user performs a data export containing fields from an instrument for which they have "De-identified" data export rights, and the user selects the de-id option to "Shift all dates" (rather than "Remove all date and datetime fields") in the export dialog, the date fields would not be date shifted but would mistakenly be completely removed from the resulting exported data set. Bug emerged in REDCap 12.2.0. (Ticket #139392)
- Bug fix: When a user creates a new project, either as an empty project or using a Project XML file, the project creator's user rights would mistakenly be missing the "Alerts & Notifications" privilege.
- Bug fix: When using Clinical Data Pull, in which a user is accessing an embedded REDCap page inside of Epic Hyperspace, some parts of the page might mistakenly not work due to JavaScript errors.
- Bug fix: A field with the @CALCTEXT action tag, in which the calculation contains text strings with line breaks, might mistakenly cause calculation errors to appear on the page and prevent the @CALCTEXT from working.
- Bug fix: Some calculations or branching logic might mistakenly fail to work and would display an error if they are substantially long. Bug emerged in the previous version. (Ticket #127140)
- Bug fix: Surveys that are set to use Comic Sans as the font for the survey text would mistakenly not display correctly when viewing the survey on iOS devices. (Ticket #95086)
- Bug fix: In very specific situations where a field is a required field and is embedded in another field, in which both fields have branching logic, if the container field is hidden by branching logic while the field embedded inside it has branching logic that evaluates to True (meaning that the embedded field would



otherwise be visible if the container field itself were visible), REDCap would mistakenly display an error saying that the embedded field is required, and thus need a value, when in fact it is not. This is an incorrect error message since the embedded field is not even visible on the page. (Ticket #139582)

- Bug fix: When piping a field value for a field on a repeating instrument/event, in which the piped value originates from another repeating instance (e.g., [field][previous-instance]), the current instance's value might mistakenly be piped instead of the value from the desired instance. (Ticket #139581)
- Bug fix: When an image is embedded (via the rich text editor) in an email for a survey invitation or alert, in which the Protected Email Mode is enabled in the project, the page where the recipient would view their email in REDCap might mistakenly not display the embedded image on the page but would show a broken image placeholder. (Ticket #139648)
- Bug fix: If a user uploaded a Project XML file for a Clinical Data Mart project, it would mistakenly enable the Data Mart feature in the newly created project even when the CDM feature is disabled at the system level. This would cause some errors to occur in the project. (Ticket #139577)

Version 13.1.0 (released on 2022-12-09)

CHANGES IN THIS VERSION:

- **New feature: Redesign of the File Repository**
 - **Overview:** The File Repository page has been redesigned to make it easier to store, organize, and share the files in your projects. Users now have the ability to create folders and sub-folders to help organize their files more effectively. If using Data Access Groups or user roles, users may optionally limit access to a new folder so that it is DAG-restricted and/or role-restricted. Uploading multiple files is much faster with a new drag-n-drop feature that allows for uploading dozens of files at a time. Sharing files is better too, in which users may obtain a public link to conveniently share a file with someone. New API methods also exist that allow users to upload, download, and delete files programmatically using the API. Additionally, the File Repository has a new built-in Recycle Bin folder that makes it easy to restore files that have been deleted. Users can upload as many files as they wish. There is no limit. Additionally, there is no limit to how many folders and sub-folders that can be created (or how deep that they can be nested within other folders).
 - **Sharing:** Files can be shared via Send-It or using a public link. If you do not want users to be able to share files using the public link functionality, this may be disabled on the File Upload Settings page in the Control Center. Once disabled, users will only be able to share files using Send-It.



- **File storage limit:** Admins may optionally set a file storage limit that applies to all projects so that users cannot upload too many files in a recursive fashion. The limit can be set in the on the File Upload Settings page in the Control Center. There is also a project-level override for the file storage limit on the Edit Project Settings page for any given project. Note: Files in the starred folders (e.g. Data Export Files, e-Consent PDFs, Recycle Bin) do not count toward the overall file space usage of the project.
- **Recycle Bin:** Files that are deleted from the File Repository will be put in the Recycle Bin folder where they will be kept for up to 30 days before being permanently deleted. Any file in the Recycle Bin can be restored back to its original location (so long as doing so does not surpass the project's file storage limit, if enabled). Administrators can "force delete" any file in the Recycle Bin, which deletes it immediately and permanently.
- **New API methods for the File Repository:** 1) Create a New Folder in the File Repository, 2) Export a List of Files/Folders from the File Repository, 3) Export a File from the File Repository, 4) Import a File into the File Repository, and 5) Delete a File from the File Repository.
- **Security improvement: Restricted file types for uploaded files** - At the bottom of the "Security & Authentication" page in the Control Center, administrators may now provide a list of all disallowed file types/extensions (e.g., exe) in order to prevent users from uploading files of these types into REDCap (often for security purposes). When set, this setting will be applied to all places throughout REDCap where users are allowed to upload files.
- **Improvement:** The "Alerts & Notifications" page now has its own separate user privilege. Previously, only users with "Project Design and Setup" privileges could access the Alerts & Notifications page. Now, users must explicitly be given "Alerts & Notifications" privileges in order to access the Alerts & Notifications page. Note: During the upgrade to REDCap 13.1.0 or higher, any users with "Project Design and Setup" rights will automatically be given "Alerts & Notifications" rights in order to keep continuity with their current access to the Alerts & Notifications page.
- **Improvement:** For OpenID Connect authentication, the Response Mode (response_mode) authorization parameter can now be explicitly set in the OIDC authentication settings on the "Security & Authentication" page in the Control Center. This will allow admins to choose between "query (default)" and "form_post" for the response_mode OIDC setting.
- **New method for plugins/hooks/modules: REDCap::getFile** - Returns an array containing the file contents, original file name, and mime-type of a file stored in the REDCap system by providing the file's doc_id number (the primary key from the redcap_edocs_metadata database table).



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- **New method for plugins/hooks/modules:**

REDCap::addFileToField - Attaches a file to a File Upload field for a specific record when provided with the location of an external file from the REDCap system.

- **Improvement:** New setting added to the User Settings page in the Control Center: "Notify the REDCap admin via email when a new account is created (excluding Table-based user accounts)?"
When enabled, this setting can be used to notify admins whenever new users enter the system. Table-based users are not included because their accounts are created by an administrator. (Ticket #133382)
- **Improvement:** New setting added to the User Settings page in the Control Center: "Send a "welcome" email to new users when they create a REDCap account (excluding Table-based user accounts) - i.e., when they log in the first time using an external authentication method?". The "welcome" email will consist of the following stock text: "You have successfully created an account in REDCap at <https://your-redcap-server.edu> (<https://your-redcap-server.edu>)/. Your REDCap username is "USERNAME". Please note that REDCap does not manage your password. If you have difficulty logging in, you should contact your local IT department. Welcome to REDCap!".
- **Improvement:** When importing User Role assignments via CSV file uploads on the User Rights page or via the API, if the project contains Data Access Groups, users can now be assigned to a DAG during the User Role assignment import process by providing an extra parameter named "data_access_group" with a valid unique DAG name. This will allow users to be added to the project, assigned to a role, and assigned to a DAG all at the same time. Additionally, when exporting User Role assignments via CSV file or via the API, the "data_access_group" attribute will be exported for each user if the project contains DAGs (to be consistent with the Import User-Role Assignment format). (Ticket #119192)
- **Change:** PHP 8.2 is now supported in REDCap.
- **Change/improvement:** When importing User Role assignments via CSV file uploads on the User Rights page or via the API, users can now be assigned to a role if they do not currently have access to the project. In previous versions, only existing project users could not be assigned to a role via CSV file or via API. (Ticket #119192)
- **Major bug fix:** A malicious user could potentially delete a file uploaded into a project to which they do not have access by manipulating an HTTP request on the Alerts & Notifications page in another project. (Ticket #138873)
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered on the Project Modifications page (where an admin would view a user's Draft Mode changes) where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way in a field's Field Label, Choice Labels, or Field Notes. (Ticket #139108)



- **Change/improvement:** When setting the designated email field on the Project Setup page or when setting the survey-level designated email field in the Survey Settings page, if the same email field is utilized in more than one context (i.e. is utilized on a repeating instrument or repeating event), a warning message will be displayed in a yellow box immediately below the email field drop-down to inform the user that any update to the field on any event or repeating instance will change the value of the field in ALL events and repeating instances. This should help provide more transparency to users who might get confused by the fact that the field's value gets updated in all places if the designated email field is located in more than one context in the project. (Ticket #131999)
- Bug fix: When both randomization and MyCap are enabled on a project, users would be unable to enable any instrument as a MyCap task in the Online Designer (excluding active tasks that were imported).
- Bug fix: A fatal PHP error would occur when using DDP Custom in a project for PHP 8. (Ticket #138771)
- Bug fix: A fatal PHP error would occur when certain Data Quality rules when using PHP 8. (Ticket #131294b)
- Bug fix: The REDCap Mobile App page mistakenly noted that the mobile app does not support Field Embedding, which is no longer true. That warning message has been removed.
- Bug fix: If one or more fields in a project utilize the @IF action tag, the REDCap Mobile App page would mistakenly fail to display a warning at the top of page to explain that the @IF action tag is not supported by the mobile app and thus fields with @IF might not function in the mobile app the same as they do on survey pages and data entry forms.
- Bug fix: A couple REDCap pages that are served as AJAX requests via JavaScript mistakenly had their "Content-Type" header set as "text/html" when instead it should have been "application/json", which was causing these requests not to be loaded successfully in the REDCap user interface in certain server/network environments.
- Bug fix: If a user on a data entry form clicks the PDF download option called "This survey with saved data (via browser's Save as PDF)", if some fields on the page have been modified but not yet saved, REDCap will display a confirmation to the user to ensure that they understand that the resulting PDF will not contain only saved data values but instead may contain both saved and yet-to-be-saved values. (Ticket #138777)
- Bug fix: Language ID and display names on the MLM "Usage" page in the Control Center could mistakenly be mismatched in some cases. (Ticket #138808)
- Bug fix: The MLM "Usage" page in the Control Center would mistakenly fail to render HTML special characters in project titles. (Ticket #138887)
- Bug fix: If an external module calls a randomization-related method in a project that does not have randomization enabled, it might throw a fatal PHP error for PHP 8. (Ticket #138756)



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- Bug fix: Multi-line text used inside single quotes or double quotes in the @CALCTEXT action tag might mistakenly have some words mistakenly replaced in the resulting text in the JavaScript or PHP queries (e.g., "or", "n"). (Ticket #138385)
- Bug fix: When using certain text or HTML inside the text of the @CALCTEXT action tag, the output value of the field might mistakenly be missing some spaces if text elements in the @CALCTEXT contained leading or trailing spaces. Additionally, text used in @CALCTEXT that contains HTML or single/double quotes might mistakenly get mangled and not display correctly on the page for the @CALCTEXT field. (Ticket #138396)
- Bug fix: When using the Survey Auto-Continue feature, in which a participant clicks a survey link of an already-completed survey and is redirected 20 times through a bunch of subsequent already-completed completed surveys, some browsers might mistakenly display a "too many redirects" error to the participant instead of properly redirecting them to the next unfinished survey. (Ticket #138914)
- Bug fix: A malicious user could potentially view a deleted message in REDCap Messenger by manipulating the parameters and/or query string of an HTTP request performed by Messenger. Only administrators should be allowed to view deleted messages in the Messenger interface. (Ticket #138873)
- Bug fix: A malicious user could potentially delete or edit a REDCap Messenger message, even when the user did not create the message and is not an administrator, by manipulating the parameters and/or query string of an HTTP request performed by Messenger. (Ticket #138859)
- Change: Added full support for parameterized queries in REDCap's db_query() function.
- Change/improvement: Added a new option \$project_id parameter for the developer method REDCap::getSurveyReturnCode().
- Bug fix: When using the AAF authentication method, the PHP method User::updateUsernameForAaf() mistakenly would not update all the database tables that contain a "user" or "username" column. Four tables were missing from the list. Thus, some database tables would not get updated when the method is called. (Ticket #138396)
- Bug fix: When creating a new project via a Project XML file, if the project is longitudinal and utilizes the Survey Queue and/or Automated Survey Invitations, the Survey Queue and ASI settings might mistakenly not get added from the XML file when the project is created. (Ticket #139035)

Version 13.0.2 (released on 2022-12-02)

CHANGES IN THIS VERSION:

- **Improvement:** MLM Usage Page - A new "Usage" tab will be displayed on the Multi-Language Management page in the



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Control Center that will display a list of all projects using MLM and in what ways they are utilizing MLM, such as the number of languages in the project (and how many are active) and whether the following MLM options apply to the given project: Deactivated by user, Enabled by admin, Deactivated by admin, and Debug mode turned on.

- **Major bug fix:** Several PHP 8 related issues for MyCap would sometimes prevent data from syncing correctly back to the REDCap server from the MyCap mobile app.
- **Major bug fix:** When using certain external authentication methods, survey pages might sometimes mistakenly time out if the project's internal Record List Cache (a secondary list of records in the database for improving performance) had not been built yet, which is done automatically by REDCap internally. This would cause an internal API call to fail when it is made inline while loading survey pages, thus causing the survey page not to load. This was supposedly fixed in version 12.4.13 LTS and 12.5.6 Standard Release, but mistakenly was not. (Ticket #104761b)
- **Change/improvement:** The path to the web server's PHP error log file is now listed at the bottom of the main Control Center page. This information will be useful to help admins locate their web server's error log, which can sometimes be difficult to find.
- **Bug fix:** The calendar feed might mistakenly provide incorrect times of calendar events for certain geographical regions that do not observe Daylight Saving Time. (Ticket #130176)
- **Bug fix:** When using the Clinical Data Pull, temporal fields were mistakenly not displayed in the CDP mapping table because REDCap metadata was incorrectly removed from the settings payload.
- **Bug fix:** When using Clinical Data Pull, when launching from the EHR context, the button "Show record in project" would mistakenly not work if the record name was non-numeric.
- **Bug fix:** Typo on OpenID Connect's login screen. (Ticket #138381)
- **Bug fix:** When exporting a project as a Project XML file, the export process might mistakenly fail with a fatal PHP error for PHP 8. (Ticket #138389)
- **Bug fix:** When creating a new project where a user selects a project template but then chooses to upload a Project XML file, REDCap might get confused about which option was selected and behave unexpectedly, such as creating the project without granting access to the initial user. (Ticket #138361)
- **Bug fix:** When a calculated field uses the datediff() function, in which the first parameter is literally "today" while the second parameter is a datetime field, the calculation might mistakenly return a blank value. (Ticket #138033)
- **Bug fix:** In some specific circumstances, the Data Import Tool might mistakenly crash due to a fatal PHP error for PHP 8. (Ticket #138527)
- **Change:** The "Break the Glass" feature for Epic in CDIS has been updated to automatically refresh any expired BTG token. Previously, BTG tokens were short-lived and did not refresh, thus causing some issues with users.



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- Bug fix: Dozens of REDCap pages that are served as AJAX requests via JavaScript mistakenly had their "Content-Type" header set as "text/html" when instead it should have been "application/json" which was causing those requests not to be loaded successfully in the REDCap user interface in certain server/network environments.
- Change: Added an MLM-related note at the top of the survey page where participants enter their survey access code. The note mentions that the language choices seen on that particular page might not necessarily be available on the survey that they are able to enter after entering their access code.

Version 13.0.1 (released on 2022-11-23)

CHANGES IN THIS VERSION:

- **Improvement:** When setting up repeating Automated Survey Invitations, 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 repeating ASI as 30.44 days since it is currently not possible for repeating ASIs 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 ASI setup dialog to inform them how to approximate a month as 30.44 days. (Ticket #136957)
- **Major bug fix:** Regarding Multi-Language Management, if the system-level setting "Require admin activation of multi-language support in projects" is disabled, the "Multi-Language Management" left-hand menu link would mistakenly not be visible to normal users unless one or more MLM languages had already been created in the project. Bug emerged in REDCap 13.0.0.
- **Improvements for CDIS**
 - Expiration indicator for the "Break the Glass" feature: The new Break the Glass workflow uses tokens that expire in an hour from their creation. The interface will now show if a token is expired.
 - Delete button for the "Break the Glass" feature: Users can remove entries from the list of Break the Glass protected patients using a button.
- **Improvement:** A link to the Codebook page was added inside the Add/Edit Field dialog on the Online Designer. This will allow the user to open the Codebook in a new tab without having to close the dialog to do so. (Ticket #138300)
- Bug fix: When using repeating Automated Survey Invitations, a record's Record Home Page might mistakenly say that there are upcoming scheduled invitations that will be sent in the next 7 days despite the fact that they are actually scheduled to be sent more than 7 days later. This only involves repeating ASIs that have been scheduled.



- Bug fix: When entering a value for the "Domain allowlist for user email addresses" setting on the User Settings page in the Control Center it would mistakenly not allow top-level domains to be entered if they contain more than 4 characters (e.g., vanderbilt.health). It now appropriately allows top-level domains up to the maximum 63 characters. (Ticket #104291)
- Bug fix: Using the "Break the Glass" feature in CDIS might mistakenly fail if the user has no access token.
- Bug fix: The "Mapping Helper" feature in CDIS might mistakenly not appear or be usable in Data Mart projects.
- Bug fix: When using the "Mapping Helper" feature or CDP Mapper for CDIS, some things might not load correctly because of some HTML needing to be escaped first in the resulting JSON.
- Bug fix: If the RemoveTempAndDeletedFiles cron job happens to be running at the same time as the Easy Upgrade process is extracting a new REDCap version, on certain server configurations the cron job might mistakenly delete some of the REDCap files being deployed in the new version, thus leaving the new REDCap version directory missing some critical files. (Ticket #137910)
- Bug fix: Bar charts and pie charts might mistakenly be displayed on Public Dashboards despite having an insufficient amount of data to display (based on the setting "Minimum number of data points required to display Smart Charts, Smart Tables, or Smart Functions on a *public* Project Dashboard..."). (Ticket #137411)
- Bug fix: When performing field embedding on a survey page or data entry form, the page might crash due to a fatal PHP error if the project has a very large amount of fields.
- Change: Slight tweak in the SQL queries used on the project Logging page to make the page load faster for older projects. (Ticket #138200)
- Bug fix: When MyCap is enabled in a project, clicking the [?] link to the right of the green Publish button at the top of the Online Designer would mistakenly display an empty dialog when viewing/editing the fields in an instrument (but it looks correct when viewing the instrument list in the Online Designer). (Ticket #138146)
- Bug fix: When MyCap is enabled in a project, on some rare occasions when migrating a project using the MyCap external module, the process might fail due to an SQL error. (Ticket #138168)
- Bug fix: When viewing the MyCap Participant List, in which a baseline date is being used, the baseline date value seen in the table for each participant would mistakenly be displayed in the wrong date format or would appear mangled. (Ticket #138166)
- Bug fix: When renaming an instrument in the Online Designer and then immediately creating a new instrument right after the renamed instrument, the new instrument might mistakenly get relocated to the first-instrument position after being created, and the record ID field might mistakenly get relocated to another position. Bug emerged in REDCap 13.0.0.



- Bug fix: For a repeating Automated Survey Invitation that has conditional logic and has the "Ensure logic is still true" checkbox checked, a record's invitation is scheduled for more repeats. Also, the ASL conditional logic no longer evaluates as True for the record, the repeating invites will stop sending (as expected), but the repeating invites would mistakenly still be displayed on the Survey Invitation Log. This would give the false impression to the user that those invitations will be sent when, in fact, they will not. (Ticket #134780)

Version 13.0.0 (released on 2022-11-17)

CHANGES IN THIS VERSION:

- **New feature: Integration of the MyCap External Module**
 - **Introduction:** MyCap is a participant-facing mobile application (on iOS and Android) used for data collection and the automated administration of active tasks (activities performed by participants using mobile device sensors under semi-controlled conditions). All data collected in the MyCap app is automatically sent back to the REDCap server as soon as internet connection is available (i.e., it can also be used for offline participant data collection). MyCap is a no-code solution for research teams conducting longitudinally-designed projects or projects with frequent participant contact. MyCap also facilitates participant engagement and retention by providing quick access to project staff and two-way communications (e.g., messaging and announcements) within the app. MyCap is available on any iOS device (iOS v11.0) and any Android device (Android v8.0). For more information about MyCap, check out the [MyCap website](https://projectmycap.org/) (<https://projectmycap.org/>), [publication](https://academic.oup.com/jamiaopen/article/5/2/ooac047/6601324) (<https://academic.oup.com/jamiaopen/article/5/2/ooac047/6601324>), [resources](https://projectmycap.org/resources/) (<https://projectmycap.org/resources/>), and a list of [MyCap use cases](https://projectmycap.org/mycap-use-cases/) (<https://projectmycap.org/mycap-use-cases/>).
 - **System-level settings:** The MyCap feature will be enabled globally by default after upgrading or installing REDCap, but it can be disabled (so that no users see the option in their projects) on the Modules/Services Configuration page in the Control Center. That page also contains a setting where, assuming MyCap is enabled globally, an admin can set it so that 1) users can enable MyCap in their projects on their own, or 2) users will need to click a button in their project to send a request requiring admin approval to enable MyCap in the project.
 - **Project-level settings:** The ability to enable or request to enable MyCap in a project will be in the Main Project Settings section at the top of the Project Setup page. There is an informational dialog there that can be opened that contains helpful links to many resources, including the MyCap website,



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the MyCap Help document (a detailed 16-page instruction manual on setup and usage), and three videos.

- **Project Utilization:** Utilizing MyCap in a project consists of two main parts: (1) design, and (2) managing participants. The design portion is where users can enable instruments as MyCap tasks, import active tasks, and design the look and feel of the MyCap app (as the participant sees it). **These things pertaining to design are performed in the Online Designer and thus require “Project Design and Setup” rights. The participant portion requires a new user right “Manage MyCap Participants” that appears on the User Rights page after MyCap has been enabled in a project.** Having this privilege, a user will have access to the “MyCap Participant Management” page on the left-hand menu. This page will allow users to view, invite, and message their MyCap participants. In many ways, it is very similar to the “Survey Distribution Tools” page when using surveys.
- **External Module Migration:** If users have been using the MyCap external module, there is an upgrade path to import all the MyCap EM settings into the built-in MyCap feature. In projects with the MyCap EM enabled, users will see a “Migrate to REDCap” button on the left-hand menu, which opens a dialog with plenty of information about the new built-in MyCap feature. As the dialog will note, users themselves cannot perform the migration, but a REDCap admin must do so for them. The migration is fast and only requires a couple button clicks, after which it will disable the MyCap EM in the project. Note: Currently, the MyCap EM is planned to be supported only until June 2023, so it is recommended that users using the EM attempt to fully migrate well before that time.
- **Smart Variables and Action Tags:** Several new Smart Variables and Action Tags can be used with MyCap, some of which are a required, integral part of how users invite participants and also how MyCap imports data into a project. See the documentation for Smart Variables containing the prefix “mycap-” and Action Tags containing the prefix “@MC-”.
- **Stats:** System-level MyCap statistics can be seen on the System Statistics page in the Control Center.
- **Improvement:** New Multi-Language Management option to require admin activation of multi-language support in projects
 - Administrators may now change the behavior of the Multi-Language Management feature so that project users cannot view or use MLM in a project until a REDCap administrator has first enabled it explicitly in that project.
 - This behavior can be changed on the Settings tab on the Multi-Language Management page in the Control Center where it says “Require admin activation of multi-language support in projects”. Note: Enabling that system-level setting will not affect any projects where multi-language support is already enabled (either because it had previously been



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enabled explicitly by an admin or there is at least one language already set up).

• Additionally, the following new admin-only options have been added to the Settings tab on the MLM Setup page in each project, in which these options only appear to admins and only when the system-level setting has been set where only admins may enable MLM:

1. "Enable multi-language support for this project" - Allows users with Project Setup and Design rights to see the MLM menu link and to use the MLM setup page.
 2. "Disable and hide multi-language support for this project" - Turning on this option will hide the MLM menu link and prevent access to Multi-Language Management for users even when there are languages defined. This overrides the Enable option above.
- **Improvement for the External Modules Framework:** New "Developer Tools" section & "Module Security Scanning" link on the Control Center -> External Modules -> Manage page.
 - Change/improvement: New and improved workflow and user interface for the "Break the Glass" feature when using Clinical Data Interoperability Services (CDIS) with Epic.
 - Change: As a convenience, when deleting a conversation in REDCap Messenger, the user is no longer prompted to enter the word "delete".
 - Change/improvement: A new check was added to the Configuration Check page to detect if the Zlib PHP extension has been installed on the REDCap web server. (Ticket #137725)
 - Change/improvement: The path to the web server's PHP.INI configuration file is now listed at the bottom of the main Control Center page (below the date of the last REDCap upgrade). This information will be useful to help admins locate their web server's config file, which can sometimes be difficult to find.
 - Change/improvement: On the Alerts & Notifications page, users are now able to copy deactivated alerts. In previous versions, alerts could not be copied until they were first reactivated.
 - Bug fix: Certain versions of MariaDB do not output the "COLLATE" portion of a database table's column definition in the results of a "SHOW CREATE TABLE" query, thus causing false positives to display in the Control Center that say that the "database structure is incorrect". (Ticket #137551, #137575, #137321)
 - Bug fix: For some web server configurations, the server's session "garbage collection" might mistakenly not run or might not run very often, thus causing the redcap_sessions database table to become overly bloated. The garbage collection process is now run manually via a cron job to ensure this task gets performed regardless of server configuration. (Ticket #137675)
 - Bug fix: When more than ten completed surveys are displayed in a participant's Survey Queue, the "all surveys completed" row might appear in the wrong place in the table. (Ticket #137550)
 - Bug fix: An error message would be seen by a REDCap admin attempting to approve an External Module Activation Request for a user. (Ticket #137672)



- Bug fix: For some users, the My Projects page might be unusually slow to load due to a change in REDCap 12.5.17 (Standard) that removed the usage of AJAX requests on the page to filter the project list. This change from 12.5.17 has been reverted back to the old behavior.
- Bug fix: When a user not assigned to a Data Access Group filters the results on the Logging page by DAG, the page might crash with an error if no users are currently assigned to that DAG in the project. (Ticket #137764)
- Bug fix: When viewing the REDCap Mobile App's "App Data Dumps" page, in which a data dump file could not be found on the server for unknown reasons, it would mistakenly throw a fatal PHP error on the page for PHP 8. (Ticket #137777)
- Bug fix: When using REDCap::saveData() in a plugin, hook, or external module, in which the "dataLogging" parameter is passed to the method as FALSE, the record list cache (i.e., the back-end secondary list of records) would mistakenly fail to get updated during this process. This means that if new records are being created via REDCap::saveData() with dataLogging=FALSE, those records would appear not to have been created until an admin clicked the "Clear the Record List Cache" button, after which the records would finally appear in the project, such as on the Record Status Dashboard, reports, and the Add/Edit Records page. (Ticket #137836)

Version 12.5.17 (released on 2022-11-11)

CHANGES IN THIS VERSION:

- Change/improvement: If the monthly User Access Dashboard reminder emails are enabled, which are used to remind project users to keep their role-based access rights up to date, the emails will now be sent only during business hours. This is intended to help increase their visibility and thus improve response rates to these reminders.
- Change/improvement: The "My Projects" page (and also the "Browse Projects" page in the Control Center) no longer loads the projects' count of records and fields via AJAX after the page has loaded but instead now loads the counts more efficiently in real time while rendering the page, which requires less HTTP requests.
- Bug fix: When attempting to upgrade an external module from the main Control Center Notifications page, the process would mistakenly fail due to a JavaScript error. However, this process does successfully complete if performed on the External Modules Module Manager page in the Control Center. (Ticket #137243)
- Bug fix: The Duo Universal Prompt utilized in the Duo two-factor authentication in REDCap might mistakenly not work for certain username conventions. REDCap now uses an updated algorithm to match the "simple" username normalization in Duo, in which "DOMAIN\username", "username@example.com



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(mailto:username@example.com)", and "username" are treated as the same user. It will also consider aliases when matching the username. Bug emerged in REDCap 12.5.15 (Standard). (Ticket #137259)

- Bug fix: When using Multi-Language Management, the section header above a matrix of fields would mistakenly not display the translated text. (Ticket #137255)
- Bug fix: When using CDIS/FHIR services to extract medications from the EHR, the values for the RxNorm code and RxNorm label were mistakenly switched.
- Bug fix: Longitudinal projects might fail to load on the "Setting up Project" screen in the REDCap Mobile App. Bug emerged in REDCap 12.5.15 (Standard). (Ticket #137314)
- Bug fix: CDIS related cron jobs were mistakenly running for projects in Analysis/Cleanup mode or marked as Completed.
- Bug fix: When certain Smart Variables (specifically form-url, form-link, survey-date-completed, survey-time-completed, survey-date-started, survey-time-started, survey-duration, and survey-duration-completed) have [first-event-name] or [last-event-name] appended to them, an incorrect value might be returned from the Smart Variable.
- Bug fix: When performing randomization on a record while on the first instrument, in which the user locks the instrument immediately after randomization has occurred, the record would get mistakenly duplicated after clicking the Save button on the page. (Ticket #137260)
- Bug fix: The BioPortal API token stored in the redcap_config database table was mistakenly not encrypted at rest as other third-party tokens/keys are. (Ticket #137403)
- Bug fix: When using Multi-Language Management, the language drop-down list was mistakenly being displayed on data entry forms even when only one language has been defined on the MLM setup page. It should only display the language choice list if there is another language to choose.
- Bug fix: If a field is used in cross-form or cross-event branching logic, in which the value of the field contains double quotes, the branching logic may not function correctly on the page. (Ticket #136926)
- Bug fix: A fatal PHP error might be thrown in some specific cases where the method Records::deleteEventInstanceByProject() is called in certain contexts. (Ticket #137376)
- Bug fix: If a project is using record auto-numbering, and the highest-numbered record gets renamed so that it is no longer the highest-numbered record, after which a participant completes a public survey in the project, the new record created by the participant would mistakenly skip the appropriate record number and be assigned to one number higher than expected. (Ticket #125567)

Version 12.5.16 (released on 2022-11-04)



CHANGES IN THIS VERSION:

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- Bug fix: If the text in a Text field or Notes field contains an email address, it should display the email address as a clickable email link when viewing the data on a report. However, it would only do that if the field value contained only an email address and no other text. (Ticket #136735)
- Change: Improved compatibility of Clinical Data Pull with Epic Hyperspace, which uses Internet Explorer.
- Bug fix: When an Automated Survey Invitation has been set up in a longitudinal project, in which the ASI's conditional logic includes datediff() today/now and has the "Ensure logic is still true" checkbox checked while additionally one or more of the variables in the logic are missing a prepended unique event name, the DateDiff Today/Now cron job might mistakenly schedule a survey invitation that should not be scheduled, even though REDCap will ultimately unschedule the invitation right before trying to send it. This bug was supposedly fixed in REDCap 12.4.7 LTS and 12.5.0 Standard, but mistakenly it was not. (Ticket #136960)
- Bug fix: The Multi-Language Management settings "Export or import general settings" were mistakenly being displayed on the MLM Control Center page when they should only be displayed in a project. (Ticket #136968)

Version 12.5.15 (released on 2022-10-27)

CHANGES IN THIS VERSION:

- **Minor security fix:** An SQL Injection vulnerability was found in the Copy Field action on the Online Designer, in which a malicious user could potentially exploit it by manipulating an HTTP request on that page.
- **Minor security fix:** An SQL Injection vulnerability was found in the "Import from Field Bank" action on the Online Designer, in which a malicious user could potentially exploit it by manipulating an HTTP request on that page.
- **Major bug fix:** When a user clicks the "Generate API Token" button on the API page in a project, it would mistakenly return a vague/unhelpful error message saying that the token could not be created (or it would simply reload the page with no warning in some cases). This would happen if the user has API Import and/or API Export privileges but does not have Mobile App privileges. The only user permission that should be required to request an API token on this page are API Import or API Export privileges. Bug emerged in REDCap 12.4.20 LTS and 12.5.13 Standard Release.
- **Major bug fix:** When renaming or deleting an instrument via the Online Designer while in development status, the instrument-level data viewing rights and instrument-level data export rights would mistakenly not always get updated to reflect the new instrument name for all the users and roles in the project. Note:



While this fix will prevent the issue going forward, users will need to manually update a user's/role's permissions to fix any already affected users/roles. (Ticket #131038)

- **Major bug fix:** When a field is embedded in a multi-page survey in which the embedded field's container field is hidden by branching logic on a different page on which the container field is itself located, the embedded field's value might mistakenly get erased when the later survey page is submitted if the embedded field is a Required field.
- **Change/improvement:** If the URL for a request on the To-Do List page contains an outdated REDCap version number (i.e., the request was made prior to the latest REDCap upgrade), the URL will now be auto-updated in the To-Do List to replace the old REDCap version number in the URL with the current REDCap version number. This will prevent 404 "Not Found" errors when processing To-Do List items in the case where the previous REDCap version directories have been removed from the web server after the latest REDCap upgrade.
- **Change/improvement:** The "Export Events" API method now also returns the "event_id" for each event. (Ticket #135602)
- **Change:** If a user cancels their own request to an admin that requests to move a project to production or to delete a project, the request no longer gets permanently deleted but gets marked as archived instead. This effectively has the same effect but preserves any comments or info associated with the original request, whereas deleting the whole request causes the comments/info to be permanently erased, which might not be ideal. (Ticket #136506)
- **Bug fix:** When using Multi-Language Management, the Survey Login page text might mistakenly not get translated. (Ticket #136358)
- **Bug fix:** When using Multi-Language Management, the choices for multiple choice fields would mistakenly not get imported when performing a CSV file import on the MLM setup page. (Ticket #136415)
- **Bug fix:** When the authentication method is set to "OpenID Connect" or "OpenID Connect & Table-based", admins may define which OIDC attribute will serve as the REDCap user's username. However, the "preferred_username" attribute was mistakenly missing from the "Attribute to use for REDCap username" drop-down on the Security & Authentication page. (Ticket #132200)
- **Bug fix:** If a user clicks the "Re-send Email" button for an email displayed on the Email Logging page in a project that has the "Protected Email Mode" feature enabled, that re-sent email would mistakenly not be sent using the Protected Email Mode but would be sent to the recipient as-is. (Ticket #120500)
- **Bug fix:** The Duo Universal Prompt utilized in the Duo two-factor authentication in REDCap might mistakenly not work and would throw an error if the REDCap username is not all lower case. (Ticket #133020b)



- Bug fix: If a text field on a data entry form or survey page is a required field and already has a saved value, if the field's value is manually removed (via backspacing) on the page and then the field is hidden by branching logic, upon saving the page, the "Some fields are required!" prompt might mistakenly get displayed for the field, which should not occur due to the fact that the field is hidden on the page. (Ticket #136520)
- Bug fix: When using Multi-Language Management, the text in the title of the "Invalid values entered" popup on data entry forms and survey pages would mistakenly not be available for translation on the MLM setup page. (Ticket #136541)

Version 12.5.14 (released on 2022-10-22)

CHANGES IN THIS VERSION:

- **Major bug fix:** When attempting to upgrade to REDCap 12.5.13 (Standard), the REDCap upgrade page would mistakenly redirect the user back to the REDCap home page, thus preventing them from actually completing the upgrade process. (Ticket #136337)
- **Major bug fix:** When performing a data import (via API, Mobile App, Data Import Tool, or REDCap::saveData) that contains not-yet-created records, in which the import process will trigger Automated Survey Invitations immediately after creating the new records, the ASI invitations might mistakenly not get scheduled/sent. In this case, the ASIs would only get triggered when someone modified a record after the import or ran the "Re-evaluate Auto Invitations" process.
- Bug fix: When exporting a Project XML file and creating a new project using it, if the project is not longitudinal but was longitudinal at some point in the past, in which the first event (while longitudinal) was named something other than "Event 1" on Arm 1, then any Automated Survey Invitation settings from the XML file might mistakenly fail to import correct into the newly created project. (Ticket #136254b)

Version 12.5.13 (released on 2022-10-21)

CHANGES IN THIS VERSION:

- **Change:** The Configuration Check page now provides a suggestion for modifying any REDCap database tables that do not have the InnoDB attribute ROW_FORMAT set to DYNAMIC. For the greatest compatibility with future REDCap upgrades, all database tables are recommended to have Dynamic row format. If any do not, the Configuration Check page will output the necessary SQL queries for fixing these tables. Note: This is not a requirement but a suggestion to prevent possible issues with future upgrades.



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- **Major bug fix:** If a user is currently logged into REDCap and then opens and completes a survey in another browser tab, their non-survey user session would mistakenly get destroyed, thus requiring the user to need to log in again when navigating back to the original tab after completing the survey.
- Bug fixes and improvements to CDIS/FHIR launch workflows (EHR and Standalone launch)
 - Fixed compatibility with Cerner system where auto-login was not working when launching from EHR.
 - Fixed compatibility with certain external REDCap authentication systems.
 - Workflow diagram and better logs added in case of error to help identify issues.
- Bug fix: Reports that have filter logic might mistakenly display some records as being in multiple arms despite the fact that they only exist in a single arm (or exist in less arms than depicted in the report). If this occurs, the report will show the record with default values in the other arm. (Ticket #135620)
- Bug fix: When exporting user roles via the API, the "unique_role_name" attribute of some roles might mistakenly be blank if the role had been recently created but not yet viewed in the user interface on the User Rights page. (Ticket #125602)
- Bug fix: When upgrading REDCap to v12.1.0 or higher, some queries in the upgrade SQL script might mistakenly fail when specifically using MySQL 8 as the database. (Ticket #131519b)
- Bug fix: When performing a fresh install of REDCap, the install page might output a 500 server error and might provide confusing error messages when valid database credentials have not been successfully added to the database.php (<http://database.php/>) file yet. (Ticket #128344)
- Bug fix: The Duo Universal Prompt utilized in the Duo two-factor authentication in REDCap might mistakenly be preventing some users from successfully logging in to REDCap in certain situations. (Ticket #134514)
- Bug fix: When a user/participant accesses a page utilizing Multi-Language Management for the first time, the auto language selection (via browser settings) might mistakenly not work correctly in certain cases, thus only displaying the correct language for some of the things on the page that were translated on the MLM setup page. (Ticket #135984)
- Bug fix: When performing a data dictionary export in a project that is using "Japanese (Shift JIS)" for the "character encoding for exported files", the process might fail with a fatal PHP error for PHP 8.0. (Ticket #136046)
- Bug fix: Utilizing a forward slash "/" anywhere inside the @IF action tag would mistakenly cause the action tag not to function. (Ticket #135803)
- Bug fix: The EHR Launch process for Clinical Data Pull might mistakenly result in a JavaScript error, specifically when using Epic, when a user attempts to add a patient to a project inside the REDCap embedded window in Hyperspace.



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- Bug fix: CDIS-related issue with FHIR version DSTU2 where date filters were mistakenly not applied to Observations data.
- Bug fix: On the Other Functionality page, when exporting the Project XML file ("metadata & data"), it would mistakenly always include all available project attributes in the resulting XML file despite the fact that some or all of the checkbox options for those project attributes were left unchecked on the page. This does not affect the "metadata only" XML file but only the "metadata & data" XML file.
- Bug fix: Important documentation was missing from the Special Functions dialog and FAQ regarding the usage of date/datetime fields with MDY and DMY date formatting when used in text string functions in branching logic and calculations.
- Bug fix: Fields in a project might randomly get out of order, which can be caused by a user on the Online Designer reordering the instruments in conjunction with some other action, such as copying an instrument immediately before the reordering and/or viewing an instrument immediately after the reordering. (Ticket #109041)
- Bug fix: When using Multi-Language Management, the Automated Survey Invitation tab on the MLM setup page might mistakenly display as blank and prevent any translation of ASIs in certain cases, such as when some ASIs have been orphaned in the backend database and are not associated with a valid event in the project. (Ticket #136254)
- Bug fix: The "Conditional logic for Survey Auto-Continue" would mistakenly not get copied into a new project's survey(s) when using the Copy Project feature on the Other Functionality page. (Ticket #136281)
- Bug fix: When REDCap is using WebDAV for file storage, in which the WebDAV connection settings have not yet been defined, a fatal PHP error may occur on certain pages when using PHP 8. (Ticket #136289)
- Bug fix: When a user clicks the "Request API Token" button on the REDCap Mobile App page in a project, it would mistakenly return a vague/unhelpful error message saying that the token could not be created (or it would simply reload the page with no warning in some cases). This would happen if the user did not have API Import or API Export privileges. The only user permission that should be required to request an API token specifically for the Mobile App is "Mobile App" user privileges. Bug emerged in REDCap 12.4.13 LTS and 12.5.6 Standard Release. (Ticket #135788)

Version 12.5.12 (released on 2022-10-07)

CHANGES IN THIS VERSION:

- Bug fix: The Record Status Dashboard might load unnecessary slowly for projects that are not using Form Display Logic and have 1000 records.



- Bug fix: On some rare occasions in longitudinal projects, a report with filter logic might mistakenly not display its report headers on the page. Bug emerged in the previous version.
- Updates and fixes for the External Module framework, including a fix that prevents out of memory errors if a record is not specified for the `getChoiceLabel()` method.
- Bug fix: When using Twilio telephony services for surveys, U.S. phone numbers having the area code "656" would mistakenly not work for SMS or voice calls unless the number has a "1" prepended to it.
- Bug fix: Some pages might mistakenly not function correctly due to a JavaScript error when using Internet Explorer. For example, this can cause branching logic and calculations to fail to function on survey pages and data entry forms when using IE.
- Bug fix: When performing a Data Search specifically on a project's record ID field on the "Add/Edit Records" page in a longitudinal project, some record names might mistakenly not be returned from the search, especially if no data has been saved in the first event for some of the records. (Ticket #135313)
- Bug fix: The "Phone (North America)" field validation might not correctly recognize some valid 10-digit North American phone numbers, especially if the fourth digit is a "3". (Ticket #135444)
- Bug fix: When using the Text-to-Speech survey feature, any fields initially hidden by branching logic on the survey would mistakenly not have the speaker icon displayed for it to allow participants to hear the question text audibly. (Ticket #135010)
- Bug fix: If a project is using Missing Data Codes and is also using the Secondary Unique Field, setting a missing data code for the Secondary Unique Field on a survey or data entry form might mistakenly result in the "Duplicate Value" error dialog. The uniqueness check should instead be ignoring any missing data codes for the Secondary Unique Field. (Ticket #132779)
- Bug fix: If a user is exporting data in EAV format for the Export Records API Method, and some of the data being exported exists on a repeating instrument or a repeating event, the record ID field might mistakenly get exported multiple times as identical rows, despite the fact that the first instrument is not a repeating instrument and does not exist on a repeating event. (Ticket #135154)

Version 12.5.11 (released on 2022-09-30)

CHANGES IN THIS VERSION:

- **New feature:** Download all files on a report - When viewing a report (including public reports) that contains one or more File Upload fields or Signature fields, a "Download Files (zip)" button will appear on the page to allow users to easily download all the report's uploaded files into a single zip file for those fields for the records in the report.



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- **Improvement/change:** The project API page now displays the user's API token in a text box with a button next to it that, when clicked, copies the API token to the user's clipboard. (Ticket #134577)
- **Minor security fix:** A cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way when uploading a CSV file of alerts on the "Alerts & Notifications" page. (Ticket #134640)
- **Major bug fix:** If using certain versions of PHP 7, especially PHP 7.2, REDCap might result in only an unusable white page due to fatal PHP errors after upgrading to REDCap 12.5.9 or 12.5.10. (Ticket #134397)
- Bug fix: The title of the "None of the Above" dialog on data entry forms and survey pages would mistakenly not display correctly. (Ticket #134326)
- Bug fix: The dialog for the @NONEOFTHEABOVE action tag might mistakenly not display at all.
- Bug fix: Uploading Automated Survey Invitations settings via CSV file might mistakenly mangle some of the timestamps in the file (e.g., "Send at exact date/time:") if they are in YMD date format when the user has an MDY or DMY date format preference set for their user account on the Profile page. The CSV import will now accept dates/times in either YMD date format or the user's preferred date format. (Ticket #133727)
- Bug fix: When importing or exporting the user rights for users or roles (whether via the user interface or API), certain privileges would mistakenly be ignored, such as those pertaining to Randomization, Double Data Entry, and the Data Resolution Workflow. (Ticket #133179)
- Bug fix: When assigning projects to a Project Folder on the "My Projects" page, the project list in Step 2 of the dialog would mistakenly list projects to which the user no longer has access. This would only happen if the projects had been assigned to that particular Project Folder sometime in the past. (Ticket #134503)
- Bug fix: In the Online Designer, when saving a Text field that was previously a Calculated field, the calculation might mistakenly not get removed from the field after being changed to a Text field, thus possibly causing issues when rendering the field on a data entry form or survey. (Ticket #134303)
- Bug fix: A calculation error might occur on a data entry form or survey page whenever a calculated field utilizes one of the [aggregate-X] Smart Variables while also utilizing other Smart Variables that result in a text string (as opposed to a number - e.g., [record-dag-label]). (Ticket #134589)
- Bug fix: When exporting a Project XML file and creating a new project using it, if the project is not longitudinal but was longitudinal at some point in the past, in which the first event (while longitudinal) was named something other than "Event 1" on Arm 1, then any Survey Queue settings from the XML file might mistakenly fail to import into the newly created project. (Ticket #134837)



- Bug fix: The "Advanced Link" option for Project Bookmarks might mistakenly return data from the API even though the user's REDCap session is no longer active. If the session has ended, the API should instead return only a value of "0".
- Bug fix: When viewing a Custom Record Status Dashboard in a longitudinal project, in which the filter logic references fields that might exist on events that contain no data for certain records, those records with no data for the event might mistakenly not get displayed on the dashboard. (Ticket #134055)
- Bug fix: When editing an alert on the Alerts & Notifications page and clicking the keyboard Enter button right after entering an invalid email address into the "manually enter emails" text boxes for the Email To, CC, or BCC settings, the error dialog would mistakenly never close but would keep popping up endlessly. This would prevent the user from fixing the email address entered and ultimately could only be resolved by refreshing the page. (Ticket #135021)

Version 12.5.10 (released on 2022-09-16)

CHANGES IN THIS VERSION:

- Bug fix: The "Add Participants" dialog on the Participant List page would mistakenly be missing some text that displays the name of the currently selected arm (only for longitudinal projects that have multiple arms). (Ticket #134086)
- Various fixes and updates for the External Module Framework, including:
 - The enable-email-hook-in-system-contexts flag must now be set to true in config.json for the redcap_email hook to run in system contexts (when a project ID is not specified).
 - External Module Framework unit tests have been refactored to significantly improve performance.
- Bug fix: When new records are being created via a data import that will trigger the scheduling of an Automated Survey Invitation that contains the Smart Variable [survey-queue-url] or [survey-queue-link] in the ASI email body, the Smart Variable would mistakenly be blank in the resulting email that gets scheduled. This does not affect existing records but only those created via data import. (Ticket #101536)
- Bug fix: Appending the Smart Variable [aggregate-count:record_id] with a parameter to filter the results by one or more specific Data Access Groups (using the either unique DAG names or "user-dag-name") would mistakenly have no effect on the result. (Ticket #132676)
- Bug fix: When opening a Calendar event, the popup might crash due to a fatal PHP error in PHP 8.0. (Ticket #134180)



Version 12.5.9 (released on 2022-09-

09)

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CHANGES IN THIS VERSION:

- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way for calculated fields on data entry forms and survey pages. (Ticket #132986)
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way for certain features of REDCap Messenger.
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way for a certain feature on the Project Setup page and Copy Project page.
- **Improvement:** Various changes and improvements for the External Module Framework, including a new module AJAX request feature (thanks to Günther Reznicek and Mark McEver). While it has always been possible to make AJAX requests via module code, using this new framework method makes it easier and more secure. Note that for framework version 11, logging in non-authenticated contexts must be explicitly allowed by setting the "enable-no-auth-logging" flag in "config.json".
- Bug fix: When renaming records, the record name would mistakenly get double-decoded during the process, which is not necessary and might cause issues depending on the specific characters inside the record's record name. (Ticket #133650)
- Bug fix: Using "now" or "today" as the first parameter in the @CALCDATE action tag might mistakenly not work while viewing a data entry form or survey page if the @CALCDATE field has DMY or YMD date format. (Ticket #133677)
- Bug fix: When using the Randomization feature and randomizing a record in a project that has record auto-numbering enabled, in which the record is being randomized before the record has first been created, right after the record has been randomized, the left-hand menu link to the record's Record Home Page might mistakenly point to a new not-yet-created record instead of the record that was just randomized. (Ticket #133678)
- Bug fix: When using the biomedical ontology searching mechanism on a data entry form or survey, results in certain ontologies might not return the expected "notation" or "cui" attribute (because they do not have those attributes), thus defaulting to the using the label itself for the data value of the field. It should instead attempt to use the "@id" attribute (if available) as a tertiary measure before defaulting to using the label. (Ticket #133550)
- Bug fix: When using "OpenID Connect" or "OpenID Connect & Table-based" authentication and logging in to the server at a



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specific URL outside the main REDCap Home page, the user would always mistakenly be redirected back to the Home page instead of the original URL. This could cause issues in certain cases, such as when clicking the email address validation link from an email. (Ticket #133729)

- Bug fix: When using WebDAV for file storage in REDCap, very large files might be able to be uploaded into File Upload fields, but attempting to download the same large files might mistakenly result in a fatal PHP error due to memory constraints. (Ticket #133638)
- Bug fix: When viewing the dialog of Upcoming Scheduled Survey Invitations for a record on the Record Home Page, the survey title (if long) might mistakenly be truncated inside the dialog. (Ticket #133813)
- Bug fix: The "Other Export Options" page was mistakenly displaying the Tableau Export dialog contents near the top of the page instead of only displaying it inside the dialog after clicking the blue "View export instructions" button. (Ticket #133813)
- Bug fix: When using Multi-Language Management, in which a survey's text is translated, the survey might crash with a fatal PHP error in specific scenarios when using PHP 8. (Ticket #133892)
- Bug fix: When using the Data Resolution Workflow and either opening/responding to/closing a data query or verifying/de-verifying a value via the results of a Data Quality rule on the Data Quality page, that specific result's button in the Data Quality dialog might not correctly get updated with the new status icon/number of comments if the project is longitudinal but instead would incorrectly display the icon/comment count for another event's result for the same record. (Ticket #131878)

Version 12.5.8 (released on 2022-09-02)

CHANGES IN THIS VERSION:

- **Minor security fix:** The third-party JavaScript libraries Handlebars and Moment.js were updated to the latest version because they contained some security vulnerabilities.
- **Major bug fix:** When using Multi-Language Management on a survey with the e-Consent Framework enabled, the PDF displayed inline on the page to the participant at the end of the survey would mistakenly not be in the participant's chosen language but instead would be in the default language. Note: This does not affect the e-Consent PDF being stored in the File Repository, which is correctly stored in the participant's language.
- Bug fix: Fix for fatal PHP 8 error when viewing the Participant List page in specific circumstances. (Ticket #132555)
- Bug fix: The Email Logging page would mistakenly not return any logged emails if the search filter was set to return emails of type "Alerts & Notifications". This was due to emails not getting stored in the email logging database table with the correct category attribute. Thus, when using the type filter "Alerts & Notifications"



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going forward, it will only return results of emails sent after upgrading to this version of REDCap. (Ticket #133222)

- Bug fix: When creating a report and adding a date/time filter, if the filter field is a report filter in step 3, if the field has a min or max range validation set and the user enters a value for the filter field that was outside of the field's min/max range, it would mistakenly display the out-of-range warning. This out-of-range warning is not necessary when building reports but only when entering data. The out-of-range check has been removed for report filter fields. (Ticket #133203)
- Bug fix: When a user in a Data Access Group is viewing the Logging page or calling the API Export Logging method, if the "Filter by event" filter (or "logtype" parameter in the API) was set to a record-oriented value (e.g., Record created only), certain logged events might mistakenly not be returned if the logged events were not performed by a user that explicitly belongs to the current user's DAG (e.g., a non-DAG user or a survey participant). (Ticket #133203)
- Bug fix: While reordering an event on the Define My Events page of a longitudinal project, the black popup that appears temporarily would mistakenly be located in the wrong place on the page. (Ticket #133296)
- Various updates and fixes for the External Module Framework, including:
 - Logged a stack trace instead of displaying it to avoid exposure of file paths
 - Prevented redcap_module_link_check_display() from running on surveys
 - Miscellaneous documentation updates
 - Miscellaneous Psalm scanning improvements
 - Fixed miscellaneous PHP 8 warnings
- Bug fix: A space was mistakenly missing before the URL in the "Super API Token has been deleted" email sent to the user. (Ticket #133345)
- Bug fix: When adding a new instrument to a project in development status, all users in the project would mistakenly not automatically be given "Full Data Set" data export rights to the new instrument. In certain circumstances when a new instrument is added, users would receive De-Identified export rights mistakenly, and in other situations, they would not appear to have any export rights at all for the new form until they logged in to REDCap and entered the project. This could additionally cause confusion where it might appear that the user's form-level export rights had changed if the user had not accessed the project during the time in which the new instrument was created and then the project was moved to production. (Ticket #133306)
- Bug fix: When using Multi-Language Management, the MLM setup page might mistakenly crash with a fatal PHP error in specific circumstances due to UTF-8 characters being present in some text. (Ticket #133305)
- Bug fix: When creating/editing an alert on the Alerts & Notifications page, the "Show Advanced SendGrid Settings" link



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inside the alert dialog would mistakenly be displayed when the SendGrid Template option is not selected and also when the SendGrid template setting is not even available in any project or when the REDCap system bug emerged in REDCap 12.5.6 (Standard).

- Bug fix: The Duo Universal Prompt utilized in the Duo two-factor authentication in REDCap might mistakenly crash with a fatal PHP error in certain situations. (Ticket #133318)
- Bug fix: Added 11 missing LOINC codes for Clinical Data Interoperability Services (CDIS) mapping.
- Bug fix: Clicking the "Project Owners" button on the Email Users page in the Control Center might mistakenly select some users that should not be selected, especially if the users had been project owners on projects that had been marked as completed or were recently deleted.
- Bug fix: When using Azure AD authentication, specifically V1 of Azure AD, the username or email address for a B2B collaboration user object might contain an "#EXT#" identifier as text inside it in certain cases. This is problematic to have the character "#" in a user's username and email. If this occurs, the text "#EXT#" will be automatically removed. (Ticket #121605c)
- Bug fix: When a user has User Rights privileges in a project and has also been assigned to a Data Access Group, if the user goes to edit their own rights on the User Rights page and clicks "Save", it would mistakenly remove them from their current DAG without warning. (Ticket #133313)
- Bug fix: When using Twilio for sending SMS messages for survey-related activities, in some cases the Survey Invitation Log might not correctly report that the participant had opted out of receiving SMS messages. In these cases, in which the Twilio API returns the specific error message "Attempt to send to unsubscribed recipient", the invitation log now correctly notes that the invitation did not send because the participant opted out. (Ticket #105253)
- Bug fix: When a user clicks the "Delete data for THIS FORM only" button at the bottom of a data entry form, in which the form exists on a repeating event where no other forms have data (i.e., all other form status icons are a gray color), the repeating event would mistakenly still appear in reports when in fact it should no longer appear in reports. (Ticket #131790)

Version 12.5.7 (released on 2022-08-26)

CHANGES IN THIS VERSION:

- **Minor security fix:** Several Cross-site Scripting (XSS) vulnerabilities were discovered where a malicious user could potentially exploit them on specific pages by inserting HTML tags and JavaScript event attributes or by manipulating parameters in the URL, specifically when editing Project Dashboards, when



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uploading and viewing inline images files on forms/surveys, and when entering Missing Data Codes of the Project Setup page.

- Change: When performing a data export, the range of mentions for REDCap publications that might be cited in published manuscripts relating to the current REDCap project. Such publications would include those for MyCap, the REDCap Mobile App, the e-Consent Framework, and CDIS.
- Change: The Configuration Check page now suggests that the MySQL setting "max_allowed_packet" be increased to 128 MB or higher (preferably to 1 GB) if it is currently less than 128 MB. In previous REDCap versions, it only made this recommendation if its value was less than 16 MB, which proved to be too small for certain very large projects to function normally.
- Bug fix: When the system-level setting "Allow reports to be made 'public?'" has been set to "No", administrators would mistakenly not be allowed to make reports public. Regardless of this setting, admins should always be able to make any report public. (Ticket #132901)
- Bug fix: Clicking the "View export instructions" for the Tableau Export option on the "Other Export Options" page might mistakenly fail to open the dialog, thus resulting in a JavaScript error.
- Bug fix: When changing the system-level language on the General Configuration page in the Control Center, the page would mistakenly not change over to the new language immediately after submitting the page but only when the page was refreshed afterward.
- Bug fix: The new Duo Universal Prompt utilized in the Duo two-factor authentication in REDCap might mistakenly not work for certain devices/OSs, such as iPhones and iPads. Bug emerged in REDCap 12.5.5 Standard. (Ticket #133020)
- Bug fix: When using Multi-Language Management, single-instrument PDF downloads would mistakenly not occur in the user's preferred language but would always be rendered in the default language. Bug emerged in REDCap 12.5.2 Standard. (Ticket #133121)
- Bug fix: If a user knows specific paths for the PHPQRcode third-party library in REDCap, they could call it many times at a specific URL, which might cause the web server's storage to fill up with lots of temporary files. (Ticket #132432)
- Bug fix: When using Form Display Logic in a longitudinal project, in which the logic references one or more fields on an event that currently has no data for a given record, the Form Display Logic would mistakenly fail to work correctly.
- Bug fix: When piping a date or datetime field into the max validation range check for another date/datetime field, if the field being used as the max exists on a different instrument or survey page, it would mistakenly not throw an out-of-range warning if the value was above the maximum. Note: This does not affect the min range check but only the max. (Ticket #124222b)



Version 12.5.6 (released on 2022-08-

19)

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CHANGES IN THIS VERSION:

- **New Feature: SendGrid Template Advanced Settings for Alerts & Notifications**

- Introduction - A new “advanced settings” section was added to the Alerts & Notifications interface when building an alert using the relatively new SendGrid Template alert type that gives users more control over the underlying SendGrid API call being made when REDCap triggers a SendGrid Template alert. Note that all of the advanced settings are optional, and they are all disabled by default. If “SendGrid Template email services for Alerts & Notifications” are enabled for a project on the Project Setup page, then these advanced settings will appear in the alert creation dialog after selecting “SendGrid Template” as the alert type. The new advanced settings are all listed in detail below.
- SendGrid Unsubscribe Groups - SendGrid can allow recipients of its emails to unsubscribe from all emails being sent from a sendgrid account, or from emails associated with specific unsubscribe groups in a sendgrid account. To take advantage of custom unsubscribe groups, you can create unsubscribe groups in your sendgrid account then associate them with alerts in your REDCap project. When a recipient unsubscribes from an email that has been associated with a specific unsubscribe group, they get added to that unsubscribe group's list and any future emails that are associated with that unsubscribe group will not be delivered to them. An alert can be associated with at most one unsubscribe group. Here is SendGrid's documentation on unsubscribe groups: <https://docs.sendgrid.com/ui/sending-email/unsubscribe-groups> (<https://docs.sendgrid.com/ui/sending-email/unsubscribe-groups>).
- SendGrid Categories - SendGrid allows you to associate arbitrary categories to each email you send from your account, effectively giving you the ability to tag each individual email sent with different metadata about the email like the email type. Unlike unsubscribe groups, categories don't have to be made in your sendgrid account before associating them with an alert in REDCap. You can define your categories in REDCap as you create your REDCap alert, and your sendgrid account will automatically detect new categories as emails get sent with them. In your SendGrid account's Category Stats page, you'll be able to see data about your emails by category. You can associate up to 10 unique categories per email, and a category name cannot be longer than 255 characters.
- SendGrid Mail Settings - Full documentation for the SendGrid bypass settings can be found at <https://docs.sendgrid.com/ui/sending-email/index->



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[suppressions#bypass-suppressions](#)

[https://docs.sendgrid.com/ui/sending-email/index-](https://docs.sendgrid.com/ui/sending-email/index-suppressions#bypass-suppression)

[suppressions#bypass-suppression](#)

[suppressions#bypass-suppression](#). Bypass List Management. When enabled, your email will

be delivered regardless of any other existing suppression management control in your account. For example, if a recipient is in an unsubscribe group or the global unsubscribe group, they will still receive the email if bypass list management is enabled. Bypass List Management can't be combined with any other bypass option.

2. Bypass Spam Management - Allows you to bypass the spam report list to ensure that the email is delivered to recipients. Some email services allow recipients to mark emails as spam. In some cases, sendgrid will be notified when a recipient marks an email as spam and will maintain a spam report list.
 3. Bypass Bounce Management - Allows you to bypass the bounce list to ensure that the email is delivered to recipients. A bounce occurs when a receiving mail server rejects an incoming email. This can happen if the recipient address is bad, for example. If sendgrid sees too many bounces happening, it will add that recipient to a bounce list and it will stop trying to send mail to that recipient. Enabling this will bypass that bounce list and force sendgrid to retry delivery.
 4. Bypass Global Unsubscribe Management - When enabled, your email will be delivered even if the recipient is on your account's global unsubscribe list.
 5. Sandbox Mode - Sandbox mode lets you check for errors in the SendGrid API call used to send an email without the potential of delivering the email. If you're unsure about your sendgrid configuration, you can run a test by enabling sandbox mode for an alert and triggering it. If your project's logs state that the alert was sent successfully and you don't see any errors, then your configuration is good to go. However, since sandbox mode was enabled for that alert, an email was not actually sent. After you're satisfied with your tests, you can disable sandbox mode and start sending real emails with your alert.
- SendGrid Tracking Settings
 1. Click Tracking - SendGrid has the ability to detect when a recipient clicks on links in an email. The count of clicks for a given email can be seen in the email activity section of your sendgrid account.
 2. Open Tracking - SendGrid has the ability to detect when a recipient opens an email by embedding a single pixel image in an email. Enabling this setting will make sendgrid include this tracking pixel in your emails. You can view the count of opens for a specific email in the email activity section of your sendgrid account.



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3. Subscription Tracking - If subscription tracking is enabled and configured on your sendgrid account, this setting lets you choose whether or not you want to include email groups unsubscribed from in a social link with the subscription tracking feature in your emails. Note that you can utilize unsubscribe groups without using the more general subscription tracking feature. I believe subscription tracking is disabled by default on a sendgrid account.

Here is some documentation from sendgrid about unsubscribe methods:

<https://support.sendgrid.com/hc/en-us/articles/1260806604209-Unsubscribe-Methods>
(<https://support.sendgrid.com/hc/en-us/articles/1260806604209-Unsubscribe-Methods>)

- Miscellaneous Additions

1. Added an External Service Check for <https://api.sendgrid.com/v3> (<https://api.sendgrid.com/v3>) in the Control Center's Configuration Check page.
2. Added a line in the Modules utilized section of the Systems Statistics page to keep track of how many non-practice projects are utilizing sendgrid for Alerts & Notifications.

- Additional SendGrid API Token Requirements - To fully support SendGrid Advanced Settings, the SendGrid API token used in the project's setup needs the permission for getting an account's unsubscribe groups through the API. This permission is mapped to the asm.groups.read scope. You can add this permission to your existing API token by editing its permissions in your SendGrid account and giving it Read Access to Unsubscribe Groups in the Suppression section.

- **Improvement:** When utilizing Multi-Language Management in a project, the Field Finder on the Codebook page now supports searching in translated field labels.
- **Improvement:** The date of the most recent REDCap upgrade for the system is now displayed near the bottom of the main Control Center page. (Ticket #69036)
- **Improvement:** "Project 5 (COVID-19)" was added as a new classification that is selectable under the NIH CDE Repository catalog for the Field Bank feature in the Online Designer. Project 5 (COVID-19) is a classification of NIH-Endorsed CDEs (Common Data Elements).
- **Major bug fix:** When exporting a PDF that contains a multiple choice field that has been flagged as an Identifier field, if the user has De-Identified data export rights for the field's instrument, the data for the field would mistakenly not be removed from the resulting PDF. (Ticket #132190)
- **Major bug fix:** When clicking the "Forgot your password?" link on the login page and then entering the username of a valid REDCap user, the password of the username entered would mistakenly be reset immediately after being entered, which could lock out the user if a malicious user is randomly entering usernames to try and discover a valid username. It now only resets the user's



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password after they click the password reset link in the email that they receive. Additionally, in order to prevent malicious users from discovering valid usernames, the password reset page now returns the exact same message in all situations, whether the username entered is a real username or not. In the case when using one of the "X & Table-based" authentication methods, if the user entered is an external user (i.e., not a Table-based user), they will also receive an email that will inform them that they must reset their password using an external resource outside of REDCap (or it will instead display the custom password reset text that has been defined in the Control Center). (Ticket #132595)

- **Major bug fix:** When using certain external authentication methods, survey pages might sometimes mistakenly time out if the project's internal Record List Cache (a secondary list of records in the database for improving performance) had not been built yet, which is done automatically by REDCap internally. This would cause an internal API call to fail when it is made inline while loading survey pages, thus causing the survey page not to load. (Ticket #104761)
- Bug fix: The Codebook page can become very slow in certain situations when lots of fields exist in the project, especially when utilizing languages for Multi-Language Management. (Ticket #132349)
- Bug fix: When using Multi-Language Management in a project, some translations might get mistakenly overwritten when importing a CSV/JSON translation file due to an issue with case sensitivity with the language ID (e.g., "es" vs "ES"). (Ticket #132443)
- Bug fix: Some of the text inside the dialog displayed to an administrator when a project has been marked as Completed was changed in order to be less confusing about the project's status after the admin has restored it. (Ticket #132499)
- Bug fix: When using Azure AD authentication, users might mistakenly not have their first/last name and email auto-populated into their user profile after initially logging in to REDCap. This bug was supposedly fixed in the previous version but mistakenly was not. (Ticket #130664b)
- Bug fix: When using the Data Resolution Workflow feature and creating data queries based on the results of Data Quality rules, the results of the Data Quality rules might not display the correct number of comments for a given discrepancy unless it belongs to a repeating instrument. (Ticket #131878)
- Bug fix: When a user's date/time format user preference on the Profile page is set specifically to "YYYY-MM-DD and 24-hour time", some timestamps displayed in the REDCap user interface (e.g., Most recent activity on Project Home, Email Logging sent time) would mistakenly display the "seconds" component of the datetime when it should only display hours and minutes. (Ticket #132678)
- Bug fix: When using Azure AD authentication, the username for a B2B collaboration user object might contain an "#EXT#" identifier as text inside it in certain cases. This is problematic to have the



character "#" in a user's username. If this occurs, the text "#EXT#" will be automatically removed from the user's username.

(Ticket #11605b)

- **Bug fix:** By manipulating URLs and JavaScript variables in a REDCap project page, a user might be able to request an API token for a project in which they do not explicitly have API rights (although they would have to have access to the other project in order to do this). Even if the administrator approved the token request via the To-Do List or via the email request, the user would not be able to obtain the API token that was created for them, nor would they be able to use the token even if they could somehow obtain it. So no real harm or privacy issues could result from this. (Ticket #132778)
- **Bug fix:** When using Multi-Language Management and importing translations for survey settings via a CSV file, some survey settings would mistakenly fail to import successfully. (Ticket #132828)
- **Bug fix:** When using Multi-Language Management, the "[Reminder]" text for Automated Survey Invitation reminders was mistakenly not translatable. It can now be translated on the User Interface > Survey > Survey Emails section on the MLM setup page. (Ticket #132868)

Version 12.5.5 (released on 2022-08-05)

CHANGES IN THIS VERSION:

- **Improvement:** Admins can now provide an alternate URL that will be used for the "Contact REDCap Administrator" links on each project's left-hand menu. If admins are using a ticket system, for example, to collect questions/issues from users, they may enter the URL of the ticket system's page where new tickets can be submitted. The alternate URL can be entered on the General Configuration page of the Control Center. If left blank (its default value), the "Contact REDCap Administrator" links will function as they have in previous versions, in which clicking them will open a pre-formatted email in the user's native email client.
- **Improvement:** The Duo two-factor authentication process has been upgraded to use the new Duo Universal Prompt. This will provide a better and more reliable user experience for those institutions using Duo for two-factor authentication in REDCap. (Ticket #130859)
- **Improvement:** Two more fields (general_practitioner and managing_organization) were added to the Patient FHIR resource when using the Clinical Data Mart service for CDIS.
- **Major bug fix:** When viewing and downloading files under the "Data Export Files" tab of the File Repository, users that do not have Full Data Set data export rights to every field contained within a given export file on that page would mistakenly be able to download the export file(s). REDCap will now check to ensure that the user has Full Data Set access to every field contained



within the export file, and if they do not, the user will not be able to download the data export file(s) in which it will instead display the following message on the page: "NOTE: You are not able to download the export file(s) here because you have either none or partial data export rights to one or more fields contained within the data export file." This bug was introduced in REDCap 12.2.0 with the advent of instrument-level data export rights.

- Bug fix: When a user attempts to submit an instrument to the REDCap Shared Library via the Online Designer, the descriptive text regarding this process mistakenly includes a dead hyperlink to a page that no longer exists. The hyperlink has been replaced with a modal dialog containing the same information. (Ticket #131617)
- Bug fix: PHP compatibility issue in some circumstances might cause the PDF export to fail with a fatal error when using PHP 8. (Ticket #131673)
- Bug fix: When using Multi-Language Management, some HTML and JavaScript might be inserted into the webpage source code too early when viewing the Survey Access Code page. (Ticket #131704)
- Bug fix: The Codebook would mistakenly not display the min/max values of slider fields on the page if the min/max range values were never explicitly set (i.e., as 0 and 100, respectively). (Ticket #131065b)
- Bug fix: When using Multi-Language Management, there might be an issue when attempting to import a system language (from the Control Center) into a project and also with exporting a language. (Ticket #131811)
- Bug fix: A user creating a new project would mistakenly not receive "Full Data Set" data export privileges on all instruments in the new project.
- Bug fix: When using the Survey Setting to provide custom text for the survey's Submit button, in which a field variable is piped into the Submit button text, it might mistakenly cause the Previous page button not to function on the survey page. (Ticket #131937)
- Change: When deleting a project via the Other Functionality page, it now displays the total number of project records inside the Delete Project dialog to give the user more context prior to deleting the project.
- Bug fix: Viewing a report might cause the page to mistakenly crash with a fatal PHP error in certain situations when running PHP 8. (Ticket #132041)
- Bug fix: If a participant is attempting to take an Adaptive or Auto-Scoring survey (i.e., downloaded from the REDCap Shared Library), in which the survey has the Survey Login feature enabled, after the participant has successfully logged in, the survey would mistakenly not display correctly because the first question and submit button would not be visible on the page, thus making it impossible to complete the survey (unless the participant refreshed the page in their browser, after which it would work correctly).



- Bug fix: When using Multi-Language Management, if a user exports a CSV language file on the MLM setup page, edits it, and then imports it back again, in certain circumstances the page changes might not take effect.
- Bug fix: When using Azure AD authentication, users might mistakenly not have their first/last name and email auto-populated into their user profile after initially logging in to REDCap. (Ticket #130664)
- Change: In the Action Tag documentation, a note was added about how to escape text returned from the @CALCTEXT action tag.
- Bug fix: When using Multi-Language Management, if the survey setting checkbox "Store the translated version of the PDF" is not checked for the "Save a PDF of completed survey response to a File Upload field" setting on the Survey Settings page, the saved PDF of the response would mistakenly be stored in the language that the participant had chosen on the survey page instead of storing the PDF using the default language. (Ticket #131879)

Version 12.5.4 (released on 2022-07-27)

CHANGES IN THIS VERSION:

- **Major bug fix:** When the Protected Email Mode is enabled in a project, and a recipient clicks the link in their email to view the original email content within REDCap, they would never receive the follow-up email containing the one-time code, thus preventing them from accessing the content of their email. (Ticket #131414)
- **Major bug fix:** When an Automated Survey Invitation utilizes conditional logic with the "Ensure logic is still true" checkbox checked, and a survey invitation gets scheduled, after which the record's data is modified, thus invalidating the ASI conditional logic, the scheduled invitation would mistakenly fail to get automatically deleted. Bug emerged in REDCap 12.5.0 (Standard). (Ticket #131358)
- **Major bug fix:** When using Google OAuth2 authentication with the User Allowlist enabled, the User Allowlist would mistakenly not prevent users from logging in who were not on the allowlist. (Ticket #131346)
- **Major bug fix:** When simultaneous users are viewing the same data entry form for a record that has not yet been created, in which the same tentative record name is displayed at the top of the form for both users, if the second user attempts to lock the form after the first user has already saved the form and created the record, the second user will end up creating a record with another record name (as expected); however, instead of the second record's form getting locked, the first user's record would mistakenly be the one that gets locked. (Ticket #131431)
- Bug fix: Various PHP errors specific to PHP 8 were fixed on the Data Quality page. (Ticket #131294)



- Bug fix: Attempting to copy an instrument in the Online Designer when the instrument contains no fields (excluding the form status (complete/incomplete) results in the instrument not actually being copied or deleted to be half-copied (i.e., almost copying it but leaving some parts orphaned in the database backend). To fix this, users will no longer be able to copy an instrument if the instrument has no fields. If a user attempts to copy an instrument with no fields, a dialog will be displayed letting them know that they cannot copy the instrument until at least one field exists in the instrument. (Ticket #131273)
- Bug fix: When using the Multi-Language Management feature, selecting a language as the Fallback language in the MLM setup might prevent the user/participant from switching to the Default language on a form/survey and would instead mistakenly display the Fallback language text on the page.
- Bug fix: A fatal PHP error might occur when using a CDIS service. (Ticket #130928)
- Bug fix: When using biomedical ontology searching for a Text field, certain specific codes for very specific ontologies (e.g., SNOMEDCT) might mistakenly return a slightly incorrect code/value (typically off by a value of "1"). This appears to be extremely rare and seems to be due to a limitation with regard to how JavaScript handles large numbers. (Ticket #131406)
- Bug fix: If survey instructions or survey completion text is indented in specific ways (e.g., when the HTML <p> tag has a padding style added to it), the indentation would not appear on the survey page but only on the Survey Settings page. (Ticket #131479)
- Bug fix: When two records are about to be created on a data entry form with the same tentative record name (as is displayed at the top of the form) by two simultaneous users, and the second record being created is created via the randomization process, then the project Logging page would mistakenly list the second record's record name with an incorrect value in the "List of Data Changes" column, although the real record name in the "Action" column would be correct for the record.
- Bug fix: The "json-array" data format that was recently added to REDCap::getData might mistakenly not return the full data expected but might only return partial data when using REDCap::getData with "json-array" data format for large sets of data.
- Bug fix: When using the Data Resolution Workflow feature and creating data queries based on the results of Data Quality rules, the results of the Data Quality rules might not display the correct number of comments for a given discrepancy if it belongs to a repeating instrument or repeating event. (Ticket #130207)
- Bug fix: When upgrading to REDCap 12.1.0 or higher, in certain situations the resulting upgrade SQL script might contain some malformed "drop foreign key" queries in which the foreign key name is mistakenly blank, thus resulting in an SQL error during the upgrade. (Ticket #131519)



- Bug fix: Fixed typo on the Publication Matching page in the Control Center. (Ticket #131581)
 - Bug fix: When the text in the survey Submit buttons is also truncated (either via a language file or via the Multi-Language Management feature), the button text might mistakenly spill out of the button and not display correctly if the button text ends up being wider than 140 pixels. (Ticket #131545)
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Version 12.5.3 (released on 2022-07-21)

CHANGES IN THIS VERSION:

- **Major bug fix:** The "Export Logging" API method would mistakenly allow users to export a project's logging when they do not explicitly have "Logging" privileges in the project. Note: The method would still require API Export privileges to work. The method now requires both API Export privileges and Logging privileges. (Ticket #131089)
- **Minor security fix:** The jQuery UI library was updated from v1.13.1 to v1.13.2 due to a Cross-site Scripting (XSS) bug.
- Bug fix: When using Multi-Language Management and translating the alternative Stop Action text that appears when a survey ends via Stop Action, the alternative Stop Action text would mistakenly not appear in its translated form when displayed on the survey page. (Ticket #130689)
- Various fixes and updates to the External Module Framework, including:
 - Clarified that the button to delete modules applies only to the selected version, not all versions.
 - Fixed issue with choice labels that have commas in them getting cut off.
 - Expanded log() method docs.
- Bug fix: When using Multi-Language Management, certain items would not be translated when only one language (which differs from what is set as the project language) is used. (Ticket #130688)
- Bug fix: When an Automated Survey Invitations option "Send the invitation X before/after Y" in Step 3 is set to "the same day (beginning at midnight)...", the invitation would mistakenly not get scheduled in longitudinal projects if the survey of the invitation being scheduled exists on a different event from the event where the ASI is being triggered (e.g., if a pre-screening survey on the first event is supposed to trigger an ASI for a follow-up survey on a subsequent event). Note: There is no way for REDCap to automatically schedule any invitations that missed getting scheduled as a result of this bug, so the only way to get the invitation(s) scheduled appropriately is to run the "Re-evaluate ASIs" option in the Online Designer or instead open each record and click the "Save" button on any data entry form (or wait for the datediff today cron job to trigger it - this only happens if datediff today/now is used in the ASI conditional



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logic). Most importantly, users may need to adjust the send-time of any new invitations that get scheduled that initially missed getting scheduled due to this bug (because their scheduled date might differ from what their scheduled date should have been originally). (Ticket #131024)

- Bug fix: When using the "Save & Return Later" feature on a multi-page survey, in which the survey contains a non-hidden @CALCTEXT field whose value gets populated early in the survey, when a participant returns to the survey later, REDCap would mistakenly advance the participant to the page with the @CALCTEXT field, even if it occurs on a later page than where the participant left off. (Ticket #131056)
- Bug fix: Any embedded images (added via the rich text editor) displayed on a public report or public project dashboard would mistakenly not display successfully on the page. (Ticket #130897)
- Bug fix: Regarding the Text-To-Speech functionality for surveys, the "Arabic (Male)" voice was deprecated in the IBM Watson TTS service that is utilized by REDCap. That voice has now been removed as an option on the Survey Settings page, and any surveys using the "Arabic (Male)" voice will automatically have the Text-To-Speech functionality disabled.
- Bug fix: The Codebook would mistakenly not display the min/max values of slider fields on the page if the "Display number value?" slider setting is not checked/enabled. (Ticket #131065)
- Bug fix: When using one of the "X & Table-based" authentication methods, various processes (e.g., cron job for user auto-suspension due to inactivity) might not work correctly for some users in certain situations, and various user interfaces (e.g., Sponsor Dashboard) might not display all correct options or page elements for some users in certain situations.

Version 12.5.2 (released on 2022-07-15)

CHANGES IN THIS VERSION:

- **Major bug fix:** If survey invitations are scheduled via the Participant List or via the Survey Options on a data entry form (i.e., not using an ASI), in which one or more invitation reminders are scheduled to be sent, the reminders would mistakenly not get automatically removed from the Survey Invitation Log after the survey had been completed. This would cause the reminders to be sent to the participant even after they had completed the survey. Bug emerged in REDCap 12.5.0 (Standard).
- **Improvement:** Added "json-array" as a new option to the data formats for REDCap::getData and REDCap::saveData. It provides a way around the json data format, for the sake of computer cycles as well as for the sake of being able to pass large data structures. The "json-array" option represents the same flat data structure as decoded JSON data when using the "json" data format for these methods, but it avoids the encode/decode steps.



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- Change/improvement: All the language displayed in the CDIS popup dialog "Key differences between Clinical Data Pull (CDP) and Clinical Data Import (CDI)" has been abstracted to a new, more readable table.
- Bug fix: When a survey is set to use "Large" or "Very large" survey text size while some SPAN tags are located inside some H1, H2, etc. tags in the survey instructions, survey completion text, or in any other text displayed on the survey page, the text inside the SPAN tags would mistakenly appear as much smaller than they should on the page. (Ticket #130326)
- Bug fix: When using Azure AD authentication, the user principal name for a B2B collaboration user object might contain an "#EXT#" identifier as text inside the user's email address. This is problematic to have the character "#" in a user's email and also (if using their email address as the user's username) to have it in the username. If this occurs, the text "#EXT#" will be automatically removed from the user's email address. (Ticket #121605)
- Various fixes and changes for the External Module Framework, including...
 - Made the "required" flag work for rich text modules settings.
 - Hid the button to enable modules when config.json is missing (preventing a confusing error).
 - Clarified the error when modules do not extend AbstractExternalModule.
- Bug fix: When using the Multi-Language Management feature and translating the titles of surveys in a project, if a survey participant navigates to the survey queue page directly, the survey titles for the surveys listed in the survey queue would be correctly translated; however, when viewing the survey queue immediately after completing a survey, the survey titles would mistakenly not be translated into the participant's selected display language. (Ticket #130429)
- Bug fix: Outgoing emails would mistakenly get logged in the "redcap_outgoing_email_sms_log" database table even when the emails themselves failed to send successfully. This could cause the table to fill with emails that never actually sent, many of which might have a missing sender or recipient address in the table. (Ticket #130546)
- Bug fix: If data is being imported (via API, Data Import Tool, Mobile App, or REDCap::saveData) for a slider field, an erroneous message might be returned in some situations regarding the slider field's min/max specific range settings.
- Bug fix: If a user has instrument-level locking privileges but only has read-only data viewing privileges for an instrument when viewing the instrument that has been fully or partially completed as a survey response, the "Lock this instrument?" checkbox would mistakenly not be displayed at the bottom of the page, thus preventing the user from locking or unlocking the form. Users with locking privileges should always be able to lock or unlock a form despite whether they have edit privileges or read-only privileges for that instrument. (Ticket #130667)



- Bug fix: A fatal PHP error might occur for longitudinal projects with no instrument-event designations when navigating to the Survey Distribution Tools page when using PHP 7.4 (Ticket #130743)
- Bug fix: When an administrator attempts to use the Project Revision History link for a given project on the Browse Projects page in the Control Center, it would mistakenly not load and thus would not be usable.
- Bug fix: When modifying Descriptive Text fields in the Online Designer, in which a field contains an inline image attachment, the image might mistakenly not display anymore in certain cases until the page is reloaded. (Ticket #130817)
- Bug fix: When using Multi-Language Management, if a user removed the default text of an item (e.g., sets the text as blank for a field label, survey instructions, etc.) after having translated the item, the MLM setup page would mistakenly no longer display the item anymore, thus making it impossible to edit the existing translated text.
- Bug fix: User input text (e.g., field labels, survey instructions) that is rendered in downloaded PDFs might get mistakenly truncated if the text contains the less-than character "<" immediately followed by certain special characters, such as " ", "-", ":", or "*". (Ticket #130761)
- Bug fix: Embedding an image via the rich text editor into the text value of a field with the @RICHTEXT action tag on a private survey would mistakenly fail with a 404 error. (Ticket #130673)

Version 12.5.1 (released on 2022-07-08)

CHANGES IN THIS VERSION:

- **Improvement:** When using the Multi-Language Management in a project where the languages created on the MLM setup page have Language IDs that correspond to language ISO codes, if a user or participant has not yet selected their display language via the MLM language-switching choices, REDCap will use their current browser settings to auto-detect and then auto-select their preferred display language. This is meant to be an added convenience to the user/participant. Note: This only occurs if project users have set up their MLM Language IDs as ISO codes.
- **Improvement/change:** Updated the Font Awesome library from v5.15.4 to v6.1.1.
- **Improvement:** Stop Actions (for multiple choice fields) and Video Display Format settings (for Descriptive Text fields with videos) are now included in Instrument Zip files when downloading or uploading them for an instrument in the Online Designer. In previous versions, stop actions were not included, and while the video URL was included, the setting that defines if the video is displayed inline or not was not included. (Ticket #124377)
- Bug fix: When a field's action tags are displayed below it in the Online Designer, sometimes an apostrophe might mistakenly get



displayed in the action tag name.

- Bug fix: Fixed issue with example HTML not displaying correctly for an item on the 'Help & FAQ' page.
- Bug fix: When using the 'Multi-Language Management' setup page, translation changes might mistakenly not get saved successfully (although they might appear to be saved) if the current user is an administrator that has "Access to all projects and data" system privileges but has not been explicitly given Project Design privileges within the project. (Ticket #130248)
- Various fixes and changes to the External Module Framework, including...
 - Improved the error message when firewalls prevent module downloads.
 - Allow deleting old versions of enabled modules.
 - Fixed a bug preventing modules containing symlinks from being deleted.
- Bug fix: A fatal PHP error might occur when accessing the Data Quality page with PHP 8.0 . (Ticket #130364)

Version 12.5.0 (released on 2022-07-01)

CHANGES IN THIS VERSION:

- **New feature: Repeating Automated Survey Invitations (ASIs)**
 - Users can now set ASIs to send multiple times on a recurring basis for any repeating survey in a project. If the survey is a repeating instrument or if it exists on a repeating event, then users will see a new section "How many times to send it" in the ASI setup popup in the Online Designer. There users may set the ASI to send survey invitations repeatedly at a regular interval, in which it can repeat forever or a set number of times. This new repeating ASI feature works similarly to how recurring alerts have always worked for Alerts & Notifications.
 - Note: If an instrument is not a repeating survey, then this new section will not appear for that survey in the ASI setup dialog.
 - When an ASI is set up to recur for a repeating survey, the [survey-link] Smart Variable in the invitation text will always point to a different repeating instance of the survey for each time the invitation is sent. For example, if the ASI is set to recur daily, then the first day's invitation will have a link pointing to instance #1 of the survey, the next day's invitation will point to instance #2, then the next to #3, and so on.
- **New Smart Variable: [new-instance]**
 - This new Smart Variable [new-instance] can be appended to [survey-link], [survey-url], [form-link], and [form-url] to create a URL that points to a new, not-yet-created repeating instance for the current record. In this way, [new-instance] functions essentially as [last-instance] 1. This new Smart Variable works for repeating instruments and also for instruments on repeating events.



- [new-instance] can also be used as stand-alone, in which it will return an integer. But it will only work when used within the context of a repeating instrument (or repeating survey, in which it will essentially return [last-instance]) for the current repeating context.
- [new-instance] will auto-append "&new" to the end of the form link or survey link (when used with [form-link/url] or [survey-link/url]) and thus will cause the user/participant to be redirected to the next repeating instance if the current repeating instance (i.e., the instance number in the URL) already exists for the record. Thus, using [form-link] or [survey-link] appended with [new-instance] will ensure that you always end up on a new, not-yet-created instance. And if two participants arrive at the same repeating survey instance with both using the exact same link created by [survey-link] [new-instance], then the second participant to submit the survey page will not override the first participant's response. Instead, it will add the second participant's response as another repeating instance that does not exist yet.
- TIP: One of the main intended usages of [new-instance] is to utilize it as [survey-link:instrument][new-instance] inside the text of a recurring alert to allow users/participants to enter data easily into a repeating survey. In this way, it works very similarly to a repeating ASI. However, repeating ASIs do not need their survey link appended with [new-instance] because it is already implied from the ASI setup.
- **New feature: Embedding images in text & emails**
 - Users may now embed one or more inline images into the text of a survey invitation, an alert, or a field label on a form/survey, among other things, by clicking the image icon in the rich text editor and then by uploading an image from their local device. Anywhere that the rich text editor is used, users may embed an image into its text (with one exception: the @RICHTEXT action tag on public surveys).
 - If you wish to disable the ability to embed images in text via the rich text editor, you may disable this functionality at the system level on the Modules/Services Configuration page in the Control Center.
- **New method for plugins/hooks/modules: REDCap::storeFile -**
Stores a file in REDCap when provided with the full path of a file on the local REDCap web server. Returns the doc_id from the redcap_edocs_metadata database table for the stored file. The file will be automatically stored using the defined file storage method in the system (e.g., WebDAV, S3, local). Note: The original file on the server will **not** be deleted by this process.
- **New method for plugins/hooks/modules: REDCap::copyFile -**
Creates a new file in REDCap by copying a file already stored in the system when provided with the doc_id of the original file from the redcap_edocs_metadata database table in the REDCap system. Returns the doc_id for the newly created file. The new file will be automatically stored using the defined file storage method in the system (e.g., WebDAV, S3, local). Note: The original file



whose doc_id is provided as a parameter will *not* be deleted by this process.

- **New method for plugins:** `hook::/module::`

`REDCap::addFileToRepository()` adds a file to a project's File

Repository when provided with the doc_id of an existing file from the REDCap system. Warning: This method should not be used for files already stored for File Upload fields or as various

attachments in the system because deleting the file from the File Repository will delete it in all places where the file is utilized.

Ideally, this method is meant to be paired with the method `REDCap::storeFile()`. If you wish to add a file to the File Repository that is already being utilized elsewhere in REDCap (e.g., as an attachment or uploaded to a File Upload field), it is recommended that you first call `REDCap::copyFile()` to copy the original file, and then call `REDCap::addFileToRepository()` afterward.

- **Improvement:** When setting up an ASI, the sub-section "When to send invitations AFTER conditions are met" now contains the new drop-down choice "the same day (beginning at midnight) that the automated invitation was triggered" in the sub-option "Send the invitation X days Y hours Z minutes before/after [drop-down]". This new choice in the drop-down allows users to schedule the invitation based on the day the ASI was triggered and provides greater control and precision with regard to when exactly the invitation will be sent. For example, if this new drop-down option is selected along with setting it to "send the invitation 1 day 8 hours after...", this will cause the invitation to be scheduled to be sent at exactly 8:00am the next morning. In previous versions, it was not possible to get this level of precision for the invitation send-time based upon ASI trigger-time unless you used a date field's value as a reference.
- **Change/improvement:** When setting up an Automated Survey Invitation, the setting to make the ASI "Active" or "Not Active" has been moved to the top right of the ASI setup dialog.
- **Various fixes and changes for the External Module Framework, including...**
 - Prevented return value warnings on external module hooks that shouldn't return values.
 - Added tags to improve Psalm scanning.
- **Bug fix:** The REDCap Cron Job might mistakenly output some SQL queries when running the `QueueRecordsDatediffCheckerCrons` job.
- **Bug fix:** When an Automated Survey Invitation has been set up in a longitudinal project, in which the ASI's conditional logic includes `datediff()` today/now and has the "Ensure logic is still true" checkbox checked while additionally one or more of the variables in the logic are missing a prepended unique event name, the `DateDiff Today/Now` cron job might mistakenly schedule a survey invitation that should not be scheduled, even though REDCap will ultimately unschedule the invitation right before trying to send it. (Ticket #129893)

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- Bug fix: When a Vimeo video link is provided for the embedded video URL for a Descriptive Text field, the video would mistakenly not be playable on the page if the URL contained extra alphanumeric characters that appear at the first set of numbers and slash in the video URL (e.g., <https://vimeo.com/637116791/709509f375> (<https://vimeo.com/637116791/709509f375>)). (Ticket #118309)
- Bug fix: Missing Data Codes could mistakenly not be saved to a File Upload field during a data import (e.g., API, Data Import Tool, REDCap::saveData) despite the fact that Missing Data Codes could be saved for File Upload fields via the web interface. (Ticket #82602)
- Bug fix: If an administrator has "Manage user accounts" privileges but does not have "Access to all projects and data..." privileges, the Browse Users page might malfunction when they attempt to perform certain actions, such as suspending users, where it would mistakenly send an email to the user themselves as if they had made a request from the Sponsor Dashboard page (which they didn't). (Ticket #129830)
- Bug fix: Fixed typo in Double Data Entry error message. (Ticket #130093)
- Bug fix: If a project is using randomization with strata fields, in which the strata fields exist on the first instrument, and then a participant loads the first instrument as a survey via the public survey link, if the strata fields appear on the first page of the survey, the strata fields will mistakenly be rendered as disabled/read-only on the public survey page if the highest-numbered record in the project has already been randomized. (Ticket #130107)

Version 12.4.5 (released on 2022-06-27)

CHANGES IN THIS VERSION:

- Bug fix: If the Custom Record Label is enabled in a project, and the current user is exporting a PDF of an instrument containing data, the fields in the Custom Record Label might all be replaced with the text **[**DATA REMOVED**]** at the top right of each PDF page if the user has De-Identified data export rights for just some of the fields. It would mistakenly either display the data for all the Custom Record Label fields or instead remove all of them, but not necessarily remove just some of them based on their form-level export rights. (Ticket #129822)
- Bug fix: Using the Action Tag @NOW on a Text field with "Time (HH:MM:SS)" field validation would mistakenly return a full datetime value when the page loads rather than just the time in HH:MM:SS format. (Ticket #129882)
- Bug fix: If a project is using randomization with strata fields, in which the randomization field and/or strata fields exist on a survey that has "Save & Return Later" enabled, if a participant completes part of the survey for a record that has already been



randomized, then returns later to the survey but forgets their return code, then clicks the "Start Over" button on the survey, the randomization field in the strata fields on the survey would mistakenly have their values erased. Although field values on the survey should be erased, but the randomization field and strata field data should never get erased for records that are already randomized. (Ticket #129892)

Version 12.4.4 (released on 2022-06-24)

CHANGES IN THIS VERSION:

- **Improvement:** The Multi-Language Management setup page now has an option to "Export or import general settings". This includes which languages are set as active, default, or fallback, which fields and survey settings are excluded, as well as the settings on the Alerts tabs and Settings tab. Note: The export/import option will appear when at least one language has been created in the project. This option is available as a JSON file only for import/export.
- Bug fix: When using the calendar feed with Outlook for calendar events containing both day and time components (as opposed to those without a time component), it might mistakenly display an error in Outlook relating to a "floating DTSTART" issue and would prevent the calendar feed from syncing properly. (Ticket #128842)
- Bug fix: The popup about anonymous surveys on the Participant List page would mistakenly display some text meant to be seen only if the project is set up to use anonymous surveys. (Ticket #129540)
- Bug fix: The calendar feed URL displayed on the Calendar page would mistakenly not display the URL of the impersonated user when an administrator uses the "View Project as User" feature but instead would display the calendar feed URL of the admin impersonating the user. (Ticket #129488)
- Bug fix: The calendar feed generated from the [calendar-link] or [calendar-url] Smart Variable would mistakenly display the Data Access Group name (if the record is assigned to a DAG) in the title of the record's calendar event in the feed. The DAG name should never appear in the participant-facing calendar event feed. (Ticket #129475)
- Bug fix: When an admin is using the Email Users page, some emails to users might mistakenly not be sent successfully due to some information being truncated (and thus corrupted) when being added to the backend database. (Ticket #129254)
- Bug fix: When using Send-It to send a file from the File Repository or a file associated with a File Upload field on a record, although the email being sent would get captured in the backend email log, the email details would mistakenly not get captured in the project-level Email Logging page. (Ticket #129554)



- Bug fix: In some specific cases when using Clinical Data Mart, normal users are not allowed to fetch data more than once.
- Bug fix: When a records Survey Queue contains more than 100 completed surveys, in which case it will hide all the completed surveys in the queue to conserve space on the page, the queue would mistakenly display the text "X surveys completed!" where X is mistakenly the total number of surveys in the queue and not the total number of completed surveys in the queue. (Ticket #128732)
- Bug fix: On the System Statistics page, the stats for the number of data values pulled for both the Clinical Data Mart and Clinical Data Pull were not being calculated correctly and might have been previously reporting much lower numbers by mistake.

Version 12.4.3 (released on 2022-06-17)

CHANGES IN THIS VERSION:

- **Major bug fix:** If a user attempts to delete a recurring alert on the Notification Log, the dialog would not close and would fail silently due to a PHP error.
- **Major bug fix:** A change in the code for the Multi-Language Management setup page in the previous REDCap version might mistakenly cause certain tabs on the page not to get updated when saved.
- **Improvement:** To improve page-loading performance of the Data Access Groups page, the DAG Switcher table at the bottom of the page will no longer be displayed when the page is initially loaded if the number of project users X the number of DAGs is greater than 5000. If the threshold is reached, then a big button saying "Display the DAG Switcher" will be displayed, and after clicking it, it will then display the DAG Switcher table. This will improve overall load time of the page in extreme cases. (Ticket #128578)
- **Change/improvement:** The red "Action Tags" button was added inside the Logic Editor dialog to make it easier to reference the Action Tags documentation while the Logic Editor is open. (Ticket #120079)
- **Change/improvement:** Below the instructional paragraph on the Participant List page, new text has been added that lists the "Survey Response Status" as being either "Anonymous*" or "Not Anonymous" along with a clickable help link that opens a dialog that discusses in-depth why/how survey responses in the project are being collected in an anonymous or non-anonymous fashion based on the project's current configuration settings. This text was added to provide more transparency and awareness to users who might not realize that they are collecting survey data in an anonymous or non-anonymous fashion, which could ultimately have implications on processes in their project later on.
- **Bug fix:** UTF-8 encoded names would mistakenly not display correctly on the newly improved Email Users page in the Control Center. (Ticket #129209)



- Bug fix: If a hook, plugin, or external module is calling the REDCap::saveData() method, in which parameters are passed to the method all in a single array (i.e., \$params ... REDCap::saveData(\$params)), the "dataAccessGroup" parameter's value would mistakenly be ignored if included in the parameter array. (Ticket #129203)
- Bug fix: The data entry form page or Online Designer might mistakenly crash with a fatal PHP error in certain situations when using PHP 8.0 . (Ticket #129297)
- Bug fix: Documentation of the datediff() function was mistakenly inferring that the "returnSignedValue" function parameter could be provided in all caps (e.g., TRUE). However, its value must always be lower case (e.g., true). The documentation has been changed to reflect this to reduce confusion. (Ticket #129332)
- Bug fix: When using Twilio to send invitations via Automated Survey Invitations that utilize the "Participant's Preference" as the invitation type, if the ASI belongs to a survey that is a repeating instrument, it is possible that the participant's preferred invitation type might get stored incorrectly in the backend database, thus potentially causing some invitations to be sent to the participant using the wrong invitation type (e.g., sent via Email instead of via SMS). (Ticket #128878)
- Bug fix: The API method "Export Logging" would mistakenly not return the extra text for the "Reason for Data Changes(s)" if the setting "Require a 'reason' when making changes to existing records" is enabled in the project.
- Bug fix: The calendar feed or downloadable ICS file from the Calendar page might mistakenly not include calendar events that are not associated with any records if the current user belongs to a Data Access Group. All non-record calendar events should be exportable and viewable in the calendar feed so long as the user still has "Calendar" user privileges. (Ticket #129359)
- Bug fix: If using one of the "X & Table-based" authentication methods, excluding "LDAP & Table" and "AAF & Table", the User Allowlist (if enabled) would mistakenly prevent Table-based users from accessing the system.
- Bug fix: The "Survey Link Lookup" link would mistakenly still be displayed on the Control Center left-hand menu even if all survey functionality was disabled globally in the system via the "Enable the use of surveys in projects?" setting on the Modules/Services Configuration page.
- Bug fix: If the custom survey width setting is set to a percentage width of the page and is set to less than 100%, it would cause less ideal user experiences when taking the survey on a mobile device. For mobile devices (i.e., narrow screens), the custom width setting is no longer applied but will instead display the survey at full screen width. (Ticket #129429)

Version 12.4.2 (released on 2022-06-10)

CHANGES IN THIS VERSION:



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- **Improvement:** New "Multi-Language Management" video (9 minutes) added to the MLI set on page and the Training Videos page.
- **Improvement:** New and improved user interface for the Email Users page in the Control Center.
- **Improvement:** A new option ("View & Edit / De-Identified") has been added to the system-level setting "Default instrument-level user access set for all project users' Data Viewing Rights and Data Export Rights whenever a new instrument is created while in production status" on the User Settings page in the Control Center. This new option will allow users to automatically have View & Edit viewing rights to all new instruments created while in production but will provide limits on their data export privileges for those new instruments.
- **Improvements for CDIS:**
 - Added RxNorm code and display fields in Clinical Data Mart (R4 and DSTU2).
 - Updated the Clinical Data Mart templates to accommodate the new data.
- **Change/improvement:** When using "OpenID Connect & Table-based" authentication, if the OIDC authentication process fails with an error that is returned to REDCap in the URL query string, the error description will now be displayed on the page for the user to see, whereas previously the error message might not be displayed on the page in certain situations. Additionally, if a Table-based user fails to successfully log in, as a convenience the login form will now automatically be displayed again without the user having to click the "Local REDCap Login" button. (Ticket #129023)
- **Bug fix:** Piping would not work successfully in real-time for Dynamic SQL fields on a survey or data entry form when the displayed language is changed on the page via Multi-Language Management. (Ticket #128562)
- **Bug fix:** The "Add Users (Table-based Only)" page in the Control Center would mistakenly not allow Administrators to create Table-based user accounts if using "OpenID Connect & Table-based" authentication.
- **Bug fix:** The "Reset Password" button would mistakenly not display on the Profile page for Table-based users if using "OpenID Connect & Table-based" authentication.
- **Bug fix:** Added 2 missing LOINC codes for the "social history" observation category in CDIS.
- **Bug fix:** When changing a project's authentication method to "OpenID Connect" or "OpenID Connect & Table-based" on the "Edit A Project's Settings" page in the Control Center, it would appear not to save the new authentication setting, but it would. But if the page was reloaded and saved again, it might revert the authentication setting to another value. (Ticket #128576)
- **Bug fix:** The up/down sorting arrows that appear in the headers of many tables displayed throughout REDCap might mistakenly



display a smaller duplicate pair of arrows that are unnecessary.

(Ticket #128758)

- Bug fix: Slider fields would mistakenly not be active and functional when viewed in the Online Designer. (Ticket #113916)

- Bug fix: Project-level external module settings would mistakenly not get deleted from the "redcap_external_module_settings" database table after a project has been permanently deleted.

(Ticket #128909)

- Bug fix: The Record Home Page in a longitudinal project would mistakenly display the column for an event when the current user has no access to any instruments that are designated for that event. It should instead hide the column on the page rather than displaying it as empty. (Ticket #127708b)
- Bug fix: All rich text editors would mistakenly strip out any Font Awesome icons that were added to the source code HTML of the rich text editor.
- Bug fix: When using Multi-Language Management, a piped label might fail to display its translated language when on a PROMIS instrument (adaptive, auto-scoring, or battery) that was downloaded from the REDCap Shared Library.
- Bug fix: The Moment.js library was updated since it was out of date.
- Bug fix: The Multi-Language Management setup page might mistakenly not load due to a JavaScript error in some very specific situations.
- Bug fix: When using "OpenID Connect & Table-based" authentication in which a user clicks the "Forgot your password?" link on the login page, and then they enter a username that is not a real username when attempting to reset their password, REDCap would mistakenly not display the error message "You entered an invalid user name or password!" on the page after the login failed. (Ticket #129022)
- Bug fix: When a user is attempting to reset their password via the "Forgot your password?" link on the REDCap login page, and the system is using one of the "X & Table-based" authentication methods, if they enter a valid username on that page in which the user is not a Table-based user but is a user from the external authentication system (e.g., LDAP, OIDC), REDCap would mistakenly fail to display the custom Password Recovery text or the stock text "The password cannot be reset due to one of the following reasons: 1) It is not a valid REDCap username, or 2) The password for this user is not able to be reset in REDCap because it can only be reset using an outside authentication resource at your institution." Bug introduced in REDCap 12.3.1.
- Bug fix: When deleting the data of an entire instrument or of an entire event that includes survey responses, the survey start time (stored in the backend database) would mistakenly not get deleted along with the data, thus causing the Smart Variables [survey-date-started] and [survey-time-started] to return the start date/time of the original response(s), which no longer exist. (Ticket #129076)



Version 12.4.1 (released on 2022-05-26)

CHANGES IN THIS VERSION:

- **Bug fix:** Prepending [previous-event-name] or [next-event-name] to the Smart Variables [survey-time-X] and [survey-date-X] might mistakenly not return a value (e.g., [previous-event-name] and [next-event-date-X] computed following survey). (Ticket #128612)
- **Improvement:** New two-factor authentication option - If using an "X & Table-based" authentication method, you can make non-Table-based users be exempt from 2FA. This can be set on the Security & Authentication page, in which a new setting "Enforce two-factor authentication ONLY for Table-based users?", which defaults to "No", can be enabled so that only Table-based users will have to go through the 2-step login process if the system is using an "X & Table-based" authentication method. This will be useful if 2FA is already implemented on the other non-Table authentication process - e.g., OpenID Connect, thus preventing the non-Table users from having to perform 2FA twice (once outside REDCap and then once inside REDCap). (Ticket #128474)
- **Change/improvement:** The "sub" attribute was added to the "Attribute to use for REDCap username" drop-down in the OpenID Connect authentication settings in the Control Center to provide greater compatibility with OIDC providers. (Ticket #128417)
- **Change/improvement:** When a user logs in to REDCap the first time via OpenID Connect authentication, it now automatically adds their first name, last name, and email address to their REDCap user account. (Ticket #128417b)
- **Bug fix:** The datediff() function might not work as expected when using different data types in the parameters (e.g., date and datetime together) for PHP-based implementations of the logic evaluation process, such as the Survey Queue, ASI conditional logic, Data Quality rule logic, etc. (Ticket #128299)
- **Bug fix:** If a survey that is a repeating instrument is displayed in the survey queue, if over 8 instances of the survey have been completed and the survey is to allow participants to return via Save & Return Later in order to modify completed responses, it would mistakenly display all 8 survey instances as visible in the survey queue when instead it should display them as being collapsed on the page. (Ticket #128362)
- **Bug fix:** If a Descriptive Text field has an inline image attachment, in which the image's file extension does not match its true mime type (i.e., someone has renamed its file extension to something incorrect prior to uploading the image), it would mistakenly cause the PDF export to run a long time and eventually time out when attempting to export a PDF of the instrument. (Ticket #128336)
- Various updates and fixes for the External Module Framework
- **Bug fix:** If using the [survey-link] Smart Variable with Custom Text and with an instance Smart Variable appended to the end (e.g.,



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- Bug fix: The "[survey-link:medications:Take this survey][last-instance]", the custom text would not display correctly but would include the unique instrument name at the beginning of the display text by mistake.
- Bug fix: The "OpenID Connect" authentication would mistakenly not work successfully if using a proxy server. (Ticket #127244)
- Bug fix: The "Add Users (Table-based Only)" link would mistakenly not be displayed on the Control Center left-hand menu if using "OpenID Connect & Table-based" authentication, thus preventing admins from being able to create Table-based user accounts. (Ticket #128472)
- Bug fix: When granting a user access to a project via the User Rights page, the new user's data export rights in the popup would mistakenly default to "Full Data Set" for all instruments when instead they should default to "De-Identified" if in development status and to "No Access" if in production status. (Ticket #128504)
- Bug fix: The ":ampm" piping parameter would mistakenly not work for datetime fields that have DMY date format. (Ticket #128507)
- Bug fix: Data Quality rule D "Field validation errors (out of range)" would mistakenly not process the min and max values for the out-of-range check correctly if a field's min/max was set as "today", "now", or as a piped variable (e.g., [other_date]).

Version 12.4.0 (released on 2022-05-20)

CHANGES IN THIS VERSION:

- **New feature:** Calendar Sync
 - Users may sync their REDCap project calendar or perform a one-time import of their project calendar events to external calendar applications such as Google Calendar, Outlook, Office 365, Zoho, Apple Calendar, or any application that supports iCal or ICS files. They may choose one of the two options below to sync or import their project calendar events to an external calendar application.
 1. Live calendar feed: Add calendar from URL/Internet - A unique web address will be displayed in a dialog on the Calendar page, in which the URL represents a real-time live feed of the REDCap project calendar. Users may copy the URL to paste it as the calendar URL in their calendar application using the option "Add calendar from URL/Internet". This will subscribe their external application to the REDCap project calendar. Privacy Note: This calendar feed URL on the Calendar page is unique to the user in the project. So if the user gets expired, removed from the project, or deleted from the system, their unique calendar feed will go blank and will not output anything anymore (for privacy purposes).



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2. One-time import: Download ICS file - Download and open the calendar ICS file below to import REDCap calendar events manually into the calendar application on your computer or upload the file to a web-based calendar service. Notice: This is not a live feed but a one-time import. Thus, any new events added to the REDCap calendar in the future will not be automatically added to the external calendar application.

- Disabling: The Calendar Sync feature can be disabled at the system level on the Modules/Services Configuration page in the Control Center.
- Feed-syncing Notice: Different calendar applications have different refresh rates. So if new events are added to the calendar in REDCap, they may not immediately appear in the external application that is consuming the feed but will appear after the next refresh interval, which might be some time later that day or the next day (depending on the calendar application). Additionally, the calendar feed represents a one-way feed. This means that while changes made to the calendar in REDCap will automatically show up in the external calendar application, users will not be able to modify them in the external calendar application because they will be read-only.
- Privacy Note: When viewing events from the Calendar page's feed or downloadable ICS file, any data from Identifier fields will be automatically removed from the feed/file (e.g., if identifier fields are included in the Custom Record Label or Secondary Unique Field, or if the record name is an identifier), in which their data will be replaced with the text "***DATA REMOVED***".
- New calendar-specific Smart Variables
 1. [calendar-url] - The web address (URL) of the calendar feed or downloadable ICS calendar file belonging to the current record.
 2. [calendar-link:Custom Text] - The HTML web link that, when clicked, will navigate to the calendar feed or downloadable ICS calendar file belonging to the current record. 'Custom Text' is an optional parameter whereby you can specify the visible link text, and if it is not provided, it defaults to simply displaying the URL as the link text.
- **New feature:** SendGrid Dynamic Templates for Alerts & Notifications
 - SendGrid Dynamic Templates give users significantly more control over the style and design of emails when compared to the standard email alert type. Enabling this feature on the Project Setup page will give users another alert type to choose from on the Alerts & Notifications page called "SendGrid Template". Thus, similar to Twilio, this feature is a project-level feature that users may enable on individual projects (or users can have administrators enable it for them).



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- **DISABLING:** The SendGrid Dynamic Templates feature can be disabled at the system level on the Modules/Services Configuration page in the Control Center. There are also other additional features on that page that determine who can enable the SendGrid services in a given project.
- **SETUP & CONFIGURATION:** This integration requires that you have an account setup on sendgrid.com (<http://sendgrid.com/>). After creating a SendGrid account, you'll need to configure senders for the account, create the dynamic templates you wish to use for REDCap alerts, and generate an API Key with appropriate permissions for REDCap to use. When configuring senders on your SendGrid account, you may specify individual senders, authenticate an entire domain so that any email address associated with that domain may be a sender, or both. Please refer to SendGrid's documentation on how to set up Domain Authentication and how to add individual Verified Senders. To create a dynamic template in your SendGrid account, login to your SendGrid account and use the sidebar to navigate to Email API→Dynamic Templates. Here you can create a dynamic template, give it a name, and associate an email design with it. Please reference SendGrid's documentation on Dynamic Templates and Handlebars to learn more about creating templates in your SendGrid account. Lastly, to create an API Key for REDCap, login to your SendGrid account and use the sidebar to navigate to Settings→API Keys. Here you can create a new API Key and specify its permissions. It is recommended that you create a Restricted Access API Key and only give the API Key the permissions REDCap needs to function. REDCap will need Full Access to Mail Send, Read Access to Sender Authentication, and Read Access to Template Engine. Once you have your API Key, you may use it to configure SendGrid Template email services for alerts & notifications through the REDCap Project Setup page.
- **ALERTS & NOTIFICATIONS:** The SendGrid Template alert type will allow you to specify a sender email address that's in your SendGrid account's list of Verified Senders or an email address that matches an Authenticated Domain associated with your SendGrid account. You'll also have an interface to choose which of your SendGrid account's dynamic templates you'd like to use for the alert as well as an interface to specify key/value pairs that will be used to populate your template with REDCap data. Lastly, choosing recipients for SendGrid alerts works the same way as choosing recipients for email alerts.
- **COST:** As REDCap makes API calls to SendGrid's Email API using your account's API Key, your SendGrid account will keep track of REDCap's usage and your SendGrid account will be charged accordingly. This is not done by REDCap but is done internally by SendGrid as you use its services. In this way, no monetary transactions are made by REDCap, and thus it is your responsibility to maintain the funds in your SendGrid



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- account in order to ensure that the service continues to work for your REDCap project. If your SendGrid account runs out of funds, the SendGrid service in REDCap will cease to function. You may reference SendGrid's pricing page to get their latest pricing.
- Thanks to Remi Frazier and Kaizen Towfiq at University of California San Francisco for their code contributions, which made this new feature possible.
-
- **New feature:** "OpenID Connect & Table-based" authentication
 - Admins may enable this new authentication method on the Security & Authentication page. It functions exactly like "OpenID Connect" authentication, and has the added bonus of providing some users with the ability to log in via REDCap's local Table-based authentication (if they will not log in via OIDC).
 - Additionally, admins may optionally define the display name of the OpenID Connect system (e.g., Google, NIH), which gets displayed in a button on the login page that says "Log in using [X] or [Local REDCap Login]". If a value is not provided for this setting, it will simply output "OpenID Connect" as the button text. Clicking that button will take the user to the OIDC login page.
 - **Improvement:** When the authentication method is set to "OpenID Connect" or "OpenID Connect & Table-based", you may define which OIDC attribute will serve as the REDCap user's username. Simply set the setting "Attribute to use for REDCap username" on the Security & Authentication page. It will default to "username" when installing/upgrading REDCap, but also provides the other options "nickname" and "email". Note: If the selected attribute does not have a value for the current user, it will revert to using the user's associated email address to serve as their username.
 - **Improvement:** New v2 endpoint for Azure AD authentication
 - The "Additional OAuth2 Azure AD Authentication Settings" section on the Security & Authentication page now contains a new "Endpoint Version" setting, which can be set as "V1" (default) or "V2" to allow REDCap to utilize different versions of the Azure AD authentication. Previously, only V1 could be utilized in REDCap. Now V2 can also be used.
 - Thanks to Paul Ryan (University of Hawai'i at Mānoa) and Eric Wagner (The Ohio State University) for their code contributions, which made this new feature possible.
 - **Improvement:** REDCap now implements a new version of the two "datediff" cron jobs that run frequently each day and are utilized for Alerts & Notifications and Automated Survey Invitations. Instead of having a single cron job for each that runs a very long time every 4 hours, the two cron jobs will now run more often in a batched mode to spread out the same amount of work in smaller batches over time. This allows the processes to be done more efficiently (and sometimes faster in many cases) without the risk of the cron jobs timing out, which has been a concern with them in the past.



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- **Improvements:** The following are enhancements for the Multi-Language Management system setup page in the Control Center:
 - "Additional column in initial" - this governs the language that is initially shown on the translatable non-project pages (essentially, this is only the generic Survey Access page) when no browser cookie is set yet.
 - Designates the "Default" column to identify the language that matches that from the active Language.ini file
 - Adds popups with explanations to the various columns.
- **Improvement:** When viewing a suspended user's account on the Browse Users page in the Control Center, it now displays the text "Suspended" in red next to the user's name and username to help admins more easily identify if the user is suspended or not.
- **Change/improvement:** When defining the footer links on the Footer Settings page in the Control Center, if the administrator fails to enter the link values correctly by forgetting to add a label for each URL, the resulting link displayed in the project footer would not be clickable. In this case, it now displays the URL as the label and will be clickable.
- **Bug fix:** When viewing an email using the Protected Email Mode feature, the page would mistakenly crash with a fatal PHP error if the Multi-Language Management feature is enabled in the project.
- **Bug fix:** The Instant Adjudication process for the Clinical Data Pull feature would mistakenly not pull a value from the EHR system when there exists a perfect timestamp match for a data value whose field has been mapped using the Near, Earliest, or Latest preselection strategies.
- **Bug fix:** The install page would mistakenly crash with a fatal PHP error if using PHP 8 when the database credentials in database.php (<http://database.php/>) are either not correct or they cannot successfully connect to the database.
- **Bug fix:** When using the same field two or three times (i.e., from different arms) as a Survey Login field, clicking the "Show value" checkbox in the Survey Login dialog would mistakenly cause the field to duplicate itself inside the dialog.
- **Bug fix:** If duplicate instances of the same cron job somehow exist in the redcap_crons database table, which should not happen, REDCap will now detect this issue automatically and remove the duplicate jobs from the table.
- **Bug fix:** If the Smart Variables [form-link] and [form-url] have a literal instance number appended to them (e.g., [form-link:meds][3]), they would mistakenly not get parsed correctly and would always produce a link/URL that points to the first repeating instance. (Ticket #127042)
- **Bug fix:** When using Multi-Language Management, @CALCTEXT and @CALCDATE fields would fail to have their values piped immediately on the page after a language switch. Additionally, when only a single language (out of multiple languages) was active on a survey, the language switch might actually fail to work.
- **Bug fix:** If a participant clicks the "Start Over" button on a partially completed survey that happens to be a repeating instrument or



- on a repeating event, the Logging page would mistakenly not explicitly state the repeating instance number to which the survey response belonged, thus making it impossible to reference instance #1 always. (Ticket #128013)
- Bug fix: When uploading a data dictionary that has calculations or branching logic that contain Smart Variables with a comma inside them (e.g., [aggregate-sum:age,age2], it would recommend stripping out the comma during the upload process, which would not be desirable.
 - Bug fix: When using CDIS services (CDP or CPM), the FHIR services might mistakenly not function successfully if the EHR endpoint contains custom port numbers in their URL (e.g., [https://example.com\(https://example.com/\):8888/FHIR/DSTU2/](https://example.com(https://example.com/):8888/FHIR/DSTU2/)).
 - Bug fix: If a Project Bookmark is set to only be displayed for users in specific Data Access Groups, the bookmark would mistakenly fail to display for a REDCap administrator that is using the "View Project As User" feature to impersonate a user assigned to one of those DAGs. However, the bookmark would display correctly for the DAG-assigned users themselves. (Ticket #128093)
 - Bug fix: The Survey Settings feature "Save a PDF of completed survey response to a File Upload field" would mistakenly fail to function if enabled for an Adaptive or Auto-Scoring survey that has been imported from the REDCap Shared Library. (Ticket #128156)
 - Bug fix: When certain field labels or section headers utilize the rich text editor on a survey that is set to display as very wide (e.g., 100% page width), the label text would mistakenly not extend to the full width of the survey table but would instead begin wrapping to the next line when the line reached a width of 850 pixels. (Ticket #128090)
 - Bug fix: In the API Playground, the Export Metadata API method would mistakenly display the Form Complete Status fields in the field drop-down list on the page. It should not display those fields in the drop-down because those fields are never included in the data dictionary, thus they would never return anything from this API method. (Ticket #127974)
 - Bug fix: Fixed rare issue where the fast refreshing of the main Control Center page would mistakenly display an issue where "redcap_ztemp_X" database tables exist and need to be deleted. (Ticket #128055)
 - Change: If a suspended Table-based user attempts to reset their password on the login page, it would send them the email for resetting their password, which is not useful since they can't actually log in to the system. It now tells them that an admin needs to first unsuspend them. (Ticket #128232)

Version 12.3.3 (released on 2022-05-12)

CHANGES IN THIS VERSION:



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- **Improvement:** If using Two-Factor Authentication, users can be allowed to use their 6-digit 2FA one-time PIN for e-signing process in place of their password (e.g. performing an e-signature on data entry forms or when utilizing the "File Upload" field enhancement feature when uploading a file on a data entry form - often used for 21 CFR Part 11 compliance for FDA trials). Normally, e-signing requires a username and password, but when this system-level setting is enabled while also having REDCap's Two-Factor Authentication enabled, users can alternatively provide their username and 2FA one-time PIN to perform the e-signing. A user can obtain their one-time PIN from their Google Authenticator or Microsoft Authenticator app, or else there will be an option available to send the user the PIN via email and/or SMS whenever they need to enter it. Note: This setting is disabled by default but can be enabled in the "Two-Factor Authentication" section on the Security & Authentication page.
- **Change/improvement:** Hyperlinks created in the rich text editor will now default to being opened in a new tab/window rather than defaulting to being opened in the current tab/window. This default value can be changed by the user when saving/inserting the link. (Ticket #124813)
- **Change/improvement:** The rich text editor might be finicky when dealing with non-Latin characters, such as converting them to HTML character codes when enabling and then disabling the rich text editor in the Edit Field popup in the Online Designer.
- **Bug fix:** Fix for an issue in the External Modules Framework that was mistakenly converting all HTML entities in some text and causing JavaScript errors when utilizing a specific EM method that might be used by an EM. (Ticket #126891)
- **Bug fix:** Field labels containing HTML character codes (e.g., ä) would mistakenly not be displayed correctly on the X or Y axis of a [line-chart] or [scatter-plot] Smart Chart. (Ticket #127516)
- **Bug fix:** On the "Modules/Services Configuration" page in the Control Center, the setting to globally disable the "Stats & Charts" page in every project was mistakenly still referring to the page by its old name "Graphical Data View & Stats", which was confusing for admins. (Ticket #127597)
- Various changes and fixes to the External Module Framework, including the following: Modified the module setting export & import features to use names rather than IDs for the arm-list, event-list, user-role-list, and dag-list setting types
- **Bug fix:** CDIS-related fixes
 - Several missing LOINC codes were added to the CDP and CDM mapping.
 - The field "Address (district/county)" in CDM was mistakenly missing as a field in CDM projects.
 - The deceasedBoolean value in CDM was mistakenly not being saved if False.
- **Bug fix:** If the value of the "report_id" parameter that is passed to the Export Reports API method does not belong to the current project whose API token is being used, if the user who owns the



API token has access to the project to which the report_id belongs, the API would mistakenly not return an error but would instead return a list of record names from the other project. Note: No other data from the other project would be returned other than the record names.

- Bug fix: When running PHP 8.0, the Stats & Charts page might fail with a fatal PHP error if number/integer fields somehow contain non-numeric values. (Ticket #122604b)
- Bug fix: When Multi-Language Management is disabled in a project, the process of a user's production draft mode changes being approved would inadvertently cause an MLM snapshot to be saved. (Ticket #127650)
- Bug fix: If the system-level setting "Enable the Graphical Data View & Stats" has been disabled and then a user is granted access to a project, the user might mistakenly be able to access parts of the "Data Reports, Exports and Stats" page, even when they do not have any data export or reports privileges. (Ticket #127597)
- Bug fix: The Record Home Page in a longitudinal project would mistakenly display the column for an event that has no instruments designated for it. It should instead hide the column on the page rather than displaying it as empty. (Ticket #127708)
- Bug fix: When branching logic contains certain Smart Variables, especially [aggregate-X] Smart Variables, it would throw a branching logic error on the survey page or data entry form. (Ticket #127741)
- Bug fix: When a user calls the API method "Export PDF file of instruments" in a longitudinal project, in which the "event" parameter is either blank or is not provided in the API request, it would return a PDF that mistakenly only contains the first event's data, when instead it should return a PDF with data for all events. (Ticket #127820)

Version 12.3.2 (released on 2022-05-06)

CHANGES IN THIS VERSION:

- **Minor security fix:** An SQL Injection vulnerability was found when submitting the Create Project page, in which a malicious user could potentially exploit it by manipulating an HTTP request on that page.
- **Improvement:** New field validation type: "Phone (UK)". This validation type supports phone numbers from the United Kingdom (e.g., 44 7911 123456, 447911123456). Note: This validation type will be disabled by default after installing or upgrading, but it can be easily enabled on the Field Validation Types page in the Control Center. Thanks to the Field Validation Committee for donating this.
- **Change:** When deleting unsent/scheduled survey invitations on the Survey Invitation Log, the checkbox "Permanently cancel these invitations?" that appears in the delete invitation dialog



now defaults to being unchecked. In previous versions, the checkbox was checked by default, which could sometimes lead to disastrous consequences if the user did not read and check carefully before selecting the invitation. (Ticket #117156)

- Bug fix: When using [aggregate-X] Smart Functions in branching logic or calculations, in which the value being returned from the function will be blank/null, it would mistakenly cause the popup error message to display on the survey page or data entry form saying that calculation errors or branching logic errors exist. (Ticket #115235b)
- Bug fix: If an embedded date or datetime field has a @READONLY action tag, the field's Today/Now button and its clickable datepicker icon would mistakenly remain active and allow users/participants to modify the field's value.
- Bug fix: If a field being piped into an outgoing email has the @RICHTEXT action tag, the resulting email body would mistakenly not look correct, such as containing too many line breaks or malformed tables. (Ticket #127174)
- Bug fix: Some REDCap installations somehow missed the upgrade script from REDCap 9.7 that enabled the "redcap.link" URL shortener. It will now be enabled if not.
- Bug fix: When using Twilio telephony services for surveys, U.S. phone numbers having the area code "332" would mistakenly not work for SMS or voice calls unless the number has a "1" prepended to it.
- Bug fix: The Publication Matching feature in the Control Center might mistakenly fail with a fatal PHP error when using PHP 8. (Ticket #127359)
- Bug fix: If a drop-down or radio button field on a survey has the @DEFAULT action tag, when the page initially loads, it would mistakenly scroll all the way down to the field with the @DEFAULT action tag (thus skipping the fields above it) if the participant was taking the survey on a mobile device. (Ticket #127406)
- Bug fix: Fixed an issue pertaining to changes made to Multi-Language Management translations while projects are in draft mode, especially affecting Automated Survey Invitation translations, in which the submitted changes would mistakenly not save successfully.
- Bug fix: If the conditional logic for an Automated Survey Invitation in a longitudinal project was mistakenly missing prepended event names for any field variables in the logic, the ASI might mistakenly not get triggered appropriately. (Ticket #127385)

Version 12.3.1 (released on 2022-04-29)

CHANGES IN THIS VERSION:

- **Improvement:** New system-level option to disable the E-signature feature so that its checkbox option is not displayed at the bottom of data entry forms (immediately above the Submit buttons). You might wish to disable this feature if you are not



using Table-based, LDAP, or LDAP Table-based authentication since the e-signature feature will not function for certain external authentication methods (e.g., Shibboleth, CAS, etc.). This feature requires a requirement for the user to re-authenticate. This feature is enabled by default but can be disabled on the "Modules/Services Configuration" page in the Control Center.

- **Improvement:** In many places that display a drop-down list of records (e.g., Logging page, Email Logging, Field Comment Log, Data Quality page, ad hoc calendar event popup, Alerts & Notifications Log, Survey Notification Log), it will display a normal drop-down list if the project contains 5000 records or less, and if the project contains more than 5000 records, it will instead automatically revert to displaying an auto-suggest textbox to allow the user to manually enter the record name (rather than attempting to display an extremely long drop-down). This should make these pages load much faster and also make them easier to use in projects containing many records.
- **Improvement/change:** Password recovery questions have been removed as a feature for Table-based authentication. Password recovery questions will no longer be utilized as a part of the process whereby Table-based users reset their password. They are an unnecessary part of that process, they only cause issues and confusion for users, and they do not add much security-wise.
- **Change/improvement:** If an [aggregate-X] Smart Function is used inside a calculation or in branching logic, the function is no longer subject to the minimum data point threshold when viewing a survey page. In previous versions, under certain situations this could lead to a calculation/branching logic error on the survey page when too few data points had been entered. Note: If the Smart Function is being utilized for piping on a survey page, it is still subject to the minimum data point threshold though (i.e., different behavior for piping vs branching/calc). (Ticket #113901)
- **Change/improvement:** A value of "0" can now be used for the setting "Minimum number of data points required to display Smart Charts..." on the system-level "User Settings" page and on the project-level "Edit a Project's Settings" page. Previous versions would not allow "0" but would allow "1" as the smallest possible value. (Ticket #113901)
- **Bug fix:** The HTML tag "code" was mistakenly not included in the ALLOWED_TAGS list of HTML tags that are allowed to be used in user input (e.g., field labels, survey instructions).
- **Bug fix:** When using the survey setting "Redirect to a URL" together with Multi-Language Management, the resulting URL would not be correct or would be malformed, thus preventing the redirection from working successfully. (Ticket #126791)
- **Bug fix:** When uploading and then downloading a file for a File Upload field on the first page of a public survey, in which a record named record "1" already exists in the project prior to loading this survey, an erroneous message would be displayed along with some JavaScript errors on the page. (Ticket #125758)
- **Bug fix:** When copying a project via the Copy Project page, many of the new survey features (e.g., custom width, font resize icons)



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added in REDCap 12.3.0 would mistakenly not get copied into the new project. (Ticket #126824)

- Bug fix: The new survey-level settings added in REDCap 12.3.0 for defining custom text for the survey Submission button were mistakenly not incorporated into Multi-Language Management, thus the custom button text was not able to be translated in MLM.
- Bug fix: When using the export->import process for Multi-Language Management via a JSON/CSV file, there might be issues with successfully importing Alerts and Automated Survey Invitations in the file.
- Bug fix: If a drop-down field has the "auto-complete" setting enabled, in which the drop-down contains more than 200 choices, then when viewing drop-down on a survey page or data entry form, clicking the drop-down's down-arrow would mistakenly not open the full list of choices for the drop-down. (Ticket #125257)
- Change: Added a "Contact REDCap administrator" link near the top of the project left-hand menu to provide a secondary place for users to easily contact their local administrator since the blue "Contact REDCap administrator" button at the bottom of the menu is often not visible on many pages if the menu is very long. Both the existing blue button and this new link function exactly the same. Note: The blue button was not removed but has been kept as a secondary way for users to contact their admin.
- Bug fix: Calculated fields containing form status fields (i.e. form "_complete") mistakenly do not fire when on a survey page. (Ticket #127009)
- Bug fix: When importing data for a field that has the @FORCE-MINMAX action tag and also has a minimum or maximum range check value as "now", "today", or a piped variable name, out-of-range values in the data import file would mistakenly not be flagged as errors during the import process and would be saved. (Ticket #126862)
- Bug fix: When a user requests that their project be moved to production, after the administrator approves their request, the user would mistakenly not receive a confirmation email of this approval if the "Enable email notifications for administrators" checkbox is left unchecked on the "To-Do List" page in the Control Center. (Ticket #127040)
- Change: The context under which the `redcap_module_configure_button_display()` external module hook has changed from the module list pages to an AJAX request. Any modules implementing this hook should test it to make sure it still behaves as desired.

Version 12.3.0 (released on 2022-04-22)

CHANGES IN THIS VERSION:



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- **New feature:** Integration of the “MySQL Simple Admin” External Module

- The integrated version of the EM works exactly the same way and additionally has the bonus feature of being able to export the query results to a CSV file. Also, the page has been renamed to “Database Query Tool”.
- Note: The upgrade process contains a migration script that will auto-migrate all existing custom queries saved in the EM, after which it will disable the EM for the system.

- **New feature:** OpenID Connect authentication method - The “Security & Authentication” page contains a section of new custom settings for using this new OpenID Connect authentication method in REDCap.

- **New feature:** Integration of many features from the “Survey UI Tweaks” External Module

- Thanks to Andy Martin and his team at Stanford for their creation and support of the EM. Several (but not all) of the features in the Survey UI Tweaks EM have been integrated as-is. Some features from the EM have actually existed in REDCap for a while. As such, the Survey UI Tweaks EM will not be disabled for any projects or even at the system level when upgrading to this version.
- Improvement: If custom question numbering is used on a survey page in which no questions have a custom question number defined, the extra space on the left of the questions will be removed to give the questions more room for display on the page.
- Improvement: On the Survey Settings page, the setting “For Required fields, display the red 'must provide value' text on the survey page?” now has a new option: “Display only the red asterisk”. This provides an additional option rather than having to choose between the binary options to hide or not hide the text.
- Improvement: When taking a survey while on a mobile device, the survey page will auto-scroll whenever selecting a value for a drop-down or radio button field to help the participant scroll down the page more easily.
- Improvement: New survey setting allows users to set a custom width of the survey displayed on the page between 50% and 100%. The default value for the setting is “Fixed width (default)”.
- Improvement: New survey setting allows users to display or hide the font resize icons at the top of the survey page. By default, it is set to display the font resize options.
- Improvement: New survey setting allows users to show or hide the Submit buttons displayed at the bottom of every survey page (including the 'Next Page' and 'Previous Page' buttons).
- Improvement: New survey setting allows users to provide alternative text for the 'Submit', 'Next Page', and 'Previous Page' buttons displayed at the bottom of every survey page.



- **Major bug fix:** A field's question text on a survey page might mistakenly not get recognized by certain screen reading software. Bug entered in REDCap 12.2 (standard and REDCap 12.014 LTS) (Ticket #122841)
- Change: Renamed the "MySQL Dashboard" to "Database Activity Monitor" on the Control Center left-hand menu.
- Change: The textbox for date, time, and datetime fields are no longer displayed with full width on data entry forms or survey pages where the whole page is disabled (e.g., when locked, when initially viewing a survey response) but instead are now displayed at their typical width.
- Bug fix: The Record Status Dashboard page might crash with a fatal PHP error in specific cases when using PHP 8.0 or 8.1. (Ticket #126395)
- Bug fix: When a checkbox is set as an Identifier field and is referenced in the body of an alert, which is set to remove all identifiers from the alert body when sent, it might throw a fatal PHP error in PHP 8.0 .
- Bug fix: When using Twilio telephony services for surveys, U.S. phone numbers having the area code "346" would mistakenly not work for SMS or voice calls unless the number has a "1" prepended to it. (Ticket #126590)
- Bug fix: When using Twilio telephony services for surveys, U.S. phone numbers having the area codes "220", "223", "458" would mistakenly not work for SMS or voice calls unless the number has a "1" prepended to it. (Ticket #126741)
- Bug fix: Clicking certain hyperlinks on a survey page might mistakenly add the green highlighted background to the field if the link exists inside a field that is a container for embedded fields. (Ticket #105242b)
- Bug fix: If a line-chart or scatter-plot Smart Variable contains a third field used for categorization, the plot might mistakenly not display but would appear blank if some choices for the categorization field are not all presented in the plot's data.
- Bug fix: When importing data in JSON format (including via the REDCap::saveData method), if a single record is represented in the imported data as multiple items/rows (i.e., when importing longitudinal events or repeating instances), if one of the rows for a record contained a leading or trailing space in the record name while other items/rows for that same record did not, the spaces would mistakenly not get trimmed off of the record name but instead would cause the record to end up in a split state in the project, in which it would appear ultimately as separate records. (Ticket #126035)

Version 12.2.11 (released on 2022-04-15)

CHANGES IN THIS VERSION:

- **Improvement:** The "Email Users" page in the Control Center now sends emails using a cron-job based queueing process. This



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means that emails are no longer sent in real time on the page, and thus there is no longer a need for the admin sending the email to stay on the page while all the emails are sent. This makes the process much faster and easier for admins using this page.

- **Improvement:** When using S3 for file storage, you may now specify a custom S3 endpoint URL on the "File Upload Settings" page in the S3 section. This helps support the use of alternative S3 destinations. (Ticket #62790)
- Bug fix: If using the Multi-Language Management feature, changing the language on the page would mistakenly not alter the URL of embedded video in a descriptive text field if a translated/alternative version of the video URL was provided for a language in the project. (Ticket #125502)
- Bug fix: When the Survey Queue is enabled in a project, a fatal PHP error might occur in some specific cases when using PHP 8.0 or 8.1 while exporting the Project XML file or while performing other Survey Queue related activities. (Ticket #126079)
- Bug fix: When one or more suspended users have access to a project that contains Data Access Groups, the User Rights page might mistakenly still display a placeholder for a suspended user's DAG assignment in the user/role table even if the users' usernames are hidden on the User Rights page. Bug emerged in REDCap 12.2.9. (Ticket #126081)
- Bug fix: When a project's language is set to be different from the system language, the popup dialogs in a project that display documentation for piping, field embedding, and special functions would mistakenly always be shown in the system language. (Ticket #126117)
- Bug fix: Using the action tag @READONLY (including @READONLY-SURVEY and @READONLY-FORM) on a Notes field that also has the action tag @RICHTEXT would mistakenly cause the Notes field not to be disabled/readonly but would still be editable. Going forward, any of the @READONLY action tags will negate @RICHTEXT on a field. (Ticket #126097)
- Bug fix: If a user assigned to a Data Access Group attempts to view a data entry form for a record not assigned to their DAG (e.g., by manipulating the URL in order to navigate to the record), it would mistakenly not display the "Record X belongs to another Data Access Group" error message and would display mostly a blank page due to a JavaScript error.
- Bug fix: When using the Mailgun service for sending outgoing emails while utilizing the "Universal FROM Email Address" setting, the Reply-To header would mistakenly fail to be set correctly for all outgoing emails. (Ticket #126173)
- Bug fix: If a user had downloaded an Adaptive or Auto-Scoring instrument from the REDCap Shared Library, they would mistakenly be allowed to translate the instrument via the Multi-Language Management setup page. Since Adaptive or Auto-Scoring instruments are validated, they should not be able to be translated because such would cause them to no longer be validated. So all Adaptive or Auto-Scoring instruments will be



disabled on the MLM setup page, thus preventing users from translating them.

- Bug fix: If a user has downloaded an instrument from the REDCap Shared Library, whether it was a curated instrument or not, it now displays a warning when attempting to translate the instrument on the Multi-Language Management setup page that the user should first check to see if the instrument is validated. And if so, they should not translate the instrument because such might cause it to no longer be validated.
- Bug fix: When using Multi-Language Management, the survey termination option "Redirect to a URL" would mistakenly not use the translated URL. (Ticket #126255)
- Bug fix: When creating a project via Project XML import, the process might crash with a fatal PHP error if using PHP 8.0 or 8.1. (Ticket #126268)
- Bug fix: Fields with a @READONLY or @READONLY-X action tag would mistakenly not be disabled on the page if the fields were embedded. (Ticket #126276)
- Bug fix: The @IF action tag will mistakenly not evaluate correctly on a survey page or data entry form if the record does not yet exist (e.g., when viewing the first page of a public survey).
- Bug fix: The @IF action tag might mistakenly not get parsed correctly in certain instances when using Multi-Language Management.
- Bug fix: When using Multi-Language Management, the UI text displayed below a field when using the @CHARLIMIT or @WORDLIMIT action tags would mistakenly not be translatable on the MLM setup page.
- Bug fix: On the Survey Settings page, if the option "Send Confirmation Email" is enabled along with the option "Include PDF of completed survey as attachment" while using Multi-Language Management, the PDF of the survey response attached to the confirmation email would mistakenly always be in the default language when instead it should be in the language in which the respondent took the survey. (Ticket #126341)
- Bug fix: When a user assigned to a Data Access Group is performing a data import for a project with Record Auto-Numbering enabled, in which the import setting "Yes, rename all records" has been set for the data import, the import process will mistakenly time out and never fully complete. (Ticket #126160)

Version 12.2.10 (released on 2022-04-08)

CHANGES IN THIS VERSION:

- Major bug fix: Some contexts that employ a user rights check might mistakenly throw a fatal PHP error in some specific cases when using PHP 8.0 or 8.1. (Ticket #125951)



Version 12.2.9 (released on 2022-04-

28)

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CHANGES IN THIS VERSION:

- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way as user-defined text in various places. (Ticket #125900)
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it on the Data Quality page and Data Comparison Tool page by inserting HTML tags and/or JavaScript event attributes into the name of a record. (Ticket #125952)
- **Improvement/change:** The Multi-Language Management setup page is slightly less restrictive now while in production status. For example, users may now export language configurations while in production even when not in draft mode.
- **Improvement/change:** If any suspended users have access to a project, the User Rights page will display a button to easily show/hide suspended users on the User Rights page. Initially, all suspended users will be displayed, but if the button is clicked, then all suspended users will remain hidden on the User Rights page of *any* project until the button is clicked again. (Ticket #75652)
- **Bug fix:** Several actions on the Multi-Language Management setup page were mistakenly not getting logged on the Logging page. (Ticket #125513)
- **Bug fix:** When using Multi-Language Management, the piping of choices in a drop-down field works inside the same instrument but mistakenly does cross-pipe into different instruments in the same project. (Ticket #125546)
- **Bug fix:** When using Multi-Language Management, the text for the "Duplicate Value" warning popup was mistakenly not available to be translated. (Ticket #125557)
- **Bug fix:** When using Twilio telephony services for surveys, U.S. phone numbers having the area code "534" would mistakenly not work for SMS or voice calls unless the number has a "1" prepended to it. (Ticket #125591)
- **Bug fix:** The API documentation for the "Delete User" method mistakenly had "dags" as a parameter when instead it should have said "users" as the parameter name. (Ticket #125497)
- **Bug fix:** For full compatibility with all stats packages during a data export, the syntax file for data exports that contain a field with a blank field label will have the field variable name used in place of the field label. (Ticket #125436)
- **Bug fix:** If the Secondary Unique Field is enabled and also has the @HIDDEN action tag, the AJAX call to check the uniqueness of its value might mistakenly get triggered if the field is the first field on a data entry form. (Ticket #125020)



- Bug fix: If Twilio is enabled at the system-level, the phone number fields would mistakenly not be displayed on a user's Profile page unless Two-Factor Authentication was enabled on the system. Even when not using Two-Factor, it will now display the phone number fields on the Profile page when Twilio is enabled in order to allow users to use their account-associated phone numbers for outgoing Alerts & Notifications via Twilio. (Ticket #124440)
- Bug fix: An HTTP 500 error might occur in some cases when using PHP 8.1 if the database connection fails to the REDCap database server. This requires a replacement of the non-versioned file "[redcap_connect.php \(http://redcap_connect.php/\)](http://redcap_connect.php/)".
- Bug fix: When a user clicks the "Erase all data" button or if deleting all records while moving the project to production, the log entries listed on the Email Logging page would mistakenly not be deleted during this process. It now properly deletes all items on the Email Logging page in both of these cases. (Ticket #125656)
- Bug fix: Some contexts that employ a user rights check might mistakenly throw a fatal PHP error in some specific cases when using PHP 8.0 or 8.1. (Ticket #125914, #125923)
- Bug fix: If a user selects a record from the drop-down list on the Logging page to filter by record, it might mistakenly display non-record related events on the page, such as events related to creating/editing/deleting user roles in the project. (Ticket #124825)
- Bug fix: If a calc or @CALCTEXT field on a non-repeating instrument has a cross-form calculation that utilizes a calc/@CALCTEXT field from a repeating instrument, the calc/@CALCTEXT field on the non-repeating instrument would mistakenly not get triggered or calculated when performing manual data entry on a survey page or data entry form, although it would get calculated correctly when running Data Quality rule H. (Ticket #125456)

Version 12.2.8 (released on 2022-04-01)

CHANGES IN THIS VERSION:

- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into the URL on the API Tokens page in the Control Center and also on the API page in a project.
- **Security improvement:** REDCap now automatically enables HSTS (HTTP Strict Transport Security) headers if the REDCap web server is using SSL. This will help protect against man-in-the-middle attacks such as protocol downgrade attacks and cookie hijacking.
- **Minor security fix:** Updated the Guzzle library due to a security vulnerability reported for that package. (Ticket #125337)



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- **Improvement:** Concurrent user checks have now been added to the Multi-Language Management setup page to prevent multiple simultaneous users from affecting each other's work when on the page.
- Bug fix: Minor issue with Medication data being pulled from the EHR using a CDIS service.
- Bug fix: When using Twilio for surveys in a project, in which a participant is taking a survey and clicks the "Save & Return Later" button followed by clicking "Send survey link", an error would mistakenly be thrown if the preferred contact mode for the participant was set to SMS_INVITE_WEB (i.e., send the survey link via SMS). The phone number would mistakenly be used instead of a valid email in the "from" property of the email. (Ticket #124472)
- Bug fix: When using PHP 8.0 and an API Supertoken is used in the API to retrieve the REDCap version, an error would be thrown. (Ticket #124562)
- Bug fix: The "RemoveTempAndDeletedFiles" cron job might mistakenly fail in certain cases with a fatal PHP error if using WebDAV as the File Storage method for REDCap. (Ticket #124802)
- Bug fix: When using Multi-Language Management, if the @LANGUAGE-CURRENT-X action tag was used on a drop-down field, branching logic would mistakenly not fire after the value was changed. (Ticket #124748)
- Bug fix: The Survey Queue's UI text would mistakenly not display the translated text when using Multi-Language Management. (Ticket #124855)
- Bug fix: When searching for users on the Browse Project page, typing the letter "b" might mistakenly cause HTML to be displayed in the auto-complete output. (Ticket #124935)
- Bug fix: The @LANGUAGE-SET action tag would mistakenly not get applied when the corresponding survey field is prefilled from a url parameter. (Ticket #124976)
- Bug fix: Using the datepicker widget on a survey page or data entry form might allow users to bypass the field validation on the field if immediately switching to using the datepicker widget on another field on the page. (Ticket #124909)
- Bug fix: In some specific scenarios, such as when symlinks exist in the file system on the REDCap web server, the System Statistics page in the Control Center might mistakenly throw a fatal PHP error or be real slow when making the AJAX request to obtain the web server space usage. (Ticket #124710)
- Bug fix: Apostrophes that occur in the output of Smart Variables like [user-role-label], [user-dag-label], and [record-dag-label] would mistakenly not get escaped and thus cause JavaScript errors to occur when used in calculated fields. (Ticket #125187)
- Bug fix: Fixed typo in @READ-ONLY action tag description.
- Bug fix: Leading/trailing pipe characters "|" in the choice option column of an uploaded data dictionary would mistakenly create empty/null multiple choice options. (Ticket #125166)
- Bug fix: IP addresses in IPv6 format for users would mistakenly get logged as NULL in the redcap_log_view database table. (Ticket



#124944)

- Bug fix: When using the @CALCDATE action tag with PHP 8.0, the correct value may be seen as calculated on the survey page or data entry form, but the value may mistakenly not get saved upon saving the page afterward. (Ticket #124619)
- Bug fix: When a field is embedded and is a required field, the field's value might mistakenly not get saved when submitting a survey page or data entry form if the field also has an @HIDDEN action tag.
- Bug fix: When a field contains the @IF action tag and also contains other non-action tag text inside the Field Annotation text, it might cause the @IF action tag not to get interpreted correctly. (Ticket #124974)

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Version 12.2.7 (released on 2022-03-10)

CHANGES IN THIS VERSION:

- Bug fix: When using Multi-Language Management, the text of field validation errors and their associated names/labels displayed in the error popup would mistakenly not be displayed in the translated language.
- Bug fix: If an administrator is impersonating a user via the "View Project as User" feature, the admin would mistakenly see all Project Bookmarks on the left-hand menu when instead they should only see the Project Bookmarks that the user being impersonated should see. (Ticket #124021)
- Bug fix: Permission-related issues for certain directories on the REDCap web server could lead to fatal PHP errors for some functions throughout REDCap that attempt to list files in specific directories.
- Bug fix: A fatal PHP error might occur in certain situations when a participant is submitting a survey while using PHP 8.0 on the web server. (Ticket #124146)
- Bug fix: If a user uses the syntax [field:value] in logic or a calculation, even though this is not correct syntax for logic/calcs (because it is implied that only the raw value should ever be used), it is allowed for compatibility reasons. However, while this syntax works for calculated fields on the same page, it would mistakenly not work for data imports, nor would it work for cross-instrument or cross-event calculations. This syntax will now work in all contexts. (Ticket #124182)
- Bug fix: When clicking a table header to sort the column in a DataTables table on any particular REDCap page, the up/down arrow icon in the column header would mistakenly disappear due to a CSS error. (Ticket #124177)
- Bug fix: If a field has the @HIDDEN, @HIDDEN-FORM, or @HIDDEN-SURVEY action tag, it would fail to hide the field if the field is embedded in another field on the page.
- Bug fix: 18 Laboratory fields and their associated LOINC codes were not originally included on the field mapping page for Clinical



Data Pull and Clinical Data Mart.

- Bug fix: Line breaks are mistakenly not preserved in the equation or a calculated field when saving the field via the Online Designer. (Ticket #124241)
- Bug fix: When piping a datetime field into the min/max validation range check for another datetime field, if the fields being used as the min or max exist on the same page, it would mistakenly throw an out-of-range error if the datetime fields are in MDY or DMY format. Note: This issue does not occur for date fields but only for datetime or datetime w/ seconds fields. (Ticket #124222)

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Version 12.2.6 (released on 2022-03-03)

CHANGES IN THIS VERSION:

- **Improvement:** When scrolling down the page in the Online Designer when adding/editing fields, an up-arrow image will appear at the bottom right of the page that (when clicked) will quickly scroll the page back to the top.
- **Major bug fix:** When a user is assigned to a Data Access Group and is attempting to import a record whose record name is the same as an existing record that belongs to another DAG, if the "force record auto-numbering" setting is not enabled as an option during the import process, the user would mistakenly be allowed to import the data with the record name as-is, thus overwriting data to the existing record that does not belong to their DAG. (Ticket #123593)
- Bug fix: When using Multi-Language Management, there are scenarios when a form/survey is set to only a subset of languages (but not including the fallback), in the case of a missing translation, the default language would mistakenly be applied instead of the fallback language.
- Change/bug fix: Performance improvements and improved cron job management for CDIS-related activities, especially the CDP Auto-Adjudication process.
- Bug fix: If the "Email Logging" feature has been disabled at the system level, the Email Logging link on the left-hand project menu would mistakenly still be displayed. (Ticket #123563)
- Bug fix: When Multi-Language Management is enabled for a specific instrument, and a user/participant fails to enter a value for all required fields, the "Some fields are required" popup would mistakenly fail to be displayed on the page after the page is reloaded. (Ticket #123641)
- Bug fix: When using Multi-Language Management, the matrix field floating/stick headers would mistakenly not appear in the desired translated language. (Ticket #123704)
- Bug fix: When a Smart Chart uses a unique report name as a parameter, in which a checkbox field is utilized in the Smart Chart and the report has the checkbox option "Combine checkbox options into single column..." checked, the resulting Smart Chart would not be displayed correctly. (Ticket #123574)



- Bug fix: When viewing the Training Videos page while not logged in to REDCap, the tables and icons on the page would be displayed but the text on the page would disappear and appear invisible. (Ticket #123734)
- Various bug fixes for Multi-Language Management.
- Bug fix: A participant could inject some JavaScript code into their browser's console that would allow them to bypass the Required Field check (specifically for drop-down fields only), thus mistakenly allowing them to complete the survey page or complete the whole survey without actually entering a value for such drop-down fields. (Ticket #123585)

Version 12.2.5 (released on 2022-02-25)

CHANGES IN THIS VERSION:

- **Improvement:** Sub-sections on the "Help & FAQ" page can now be accessed via hyperlinks near the top of each section. Previously there was a drop-down for this, which was slightly slower. Having sub-section links near the top of the page should make it faster for users to jump to a specific section.
- **Improvement:** The Multi-Language Management setup page now displays a download option for each instrument under the Forms/Surveys tab to allow users to export->import the translations for that single instrument to another project that has the same instrument with the same fields and variable names.
- **Improvement:** The Multi-Language Management setup page now displays the Default text above (rather than below) the input text box for each translatable item. This reversal appears to be more intuitive for users as they translate each element.
- **Improvement:** In the "Compose Survey Invitations" dialog on the Participant List page, the Actions drop-down for auto-selecting checkboxes for participants in the participant list now contains a new option: "Check Not Responded and Partial Response".
- **Change:** Minor updates to CDIS-related settings: 1) Updated the text of the automatic message sent to the user via REDCap Messenger when a CDIS cron job has no FHIR tokens that it can use for a specific project, and 2) When a CDIS automatic message is sent to the user via REDCap Messenger, in order to prevent possibly hundreds or thousands of messages from clogging up the user's Messenger inbox, it now deletes all previous messages of the same type except for the last one.
- **Bug fix:** In some specific scenarios while using PHP 8.0 or 8.1, the System Statistics page in the Control Center might mistakenly throw a fatal PHP error when making the AJAX request to obtain the web server space usage. (Ticket #123238)
- **Bug fix:** If some branching logic, conditional logic, or calculations have incorrect syntax in a specific way, depending on the logic/calculation itself, it could result in a fatal PHP error when being processed. (Ticket #123229)



- Bug fix: When using the Smart Variable [stats-table] in the content of an outgoing email (i.e., survey invitation or alert), the table would mistakenly be missing all the styling applied to it when viewed in the REDCap application. (Ticket #123207)
- Bug fix: When using the Smart Variable [stats-table] in the content of an outgoing email (i.e., survey invitation or alert), the "Export table" link that is normally displayed below the table might mistakenly get included in the email body, which might occasionally cause the link to be removed from the email message by the email client or might cause the entire email message to be flagged as spam and therefore not received by the recipient.
- Various fixes and updates for the External Module Framework.
- Bug fix: When multiple choice fields have choice values of "0" and "00", and a record has either choice selected and saved on an instrument, if that instrument is then exported as a PDF with data, both choices would mistakenly appear checked as seen in the PDF. (Ticket #123282)
- Bug fix: When using Twilio telephony services for surveys, U.S. phone numbers having the area code "667" would mistakenly not work for SMS or voice calls unless the number has a "1" prepended to it. (Ticket #123291)
- Bug fix: When using a Custom Record Label that contains Smart Variables but not field variable names, the Custom Record Label would mistakenly not display at all in certain places where the record name is displayed. (Ticket #123187)
- Bug fix: The Multi-Language Management setup page would mistakenly fail to load/display any fields on the instrument-level translation tab if a multiple choice field on the instrument contained zero choices. (Ticket #123371)
- Bug fix: When exporting data via the user interface, API, or REDCap::getData(), depending on the structure of a project, an error might mistakenly be returned due to hitting the PHP memory_limit threshold and thus throwing a fatal PHP error. This was due to REDCap's internal batch process, which is completely transparent to the user, having too large a value for the size of a given batch.
- Bug fix: When the "Filter by records in a DAG" drop-down filter has been selected on the Logging page, and the user then clicks the "Export all pages using current filters" button at the top of the page, the DAG filter would mistakenly not be applied in the resulting CSV export file. (Ticket #123472)
- Bug fix: When a project is being created via a Project XML file, and the Secondary Unique Field in the XML file is a calculated field or a @CALCTEXT field, which are not allowed to be set as the Secondary Unique Field, it would mistakenly set the field as the Secondary Unique Field when creating the project. In this case it will now instead unset the Secondary Unique Field setting for the newly created project. (Ticket #123099)
- Bug fix: The Multi-Language Management feature would mistakenly display Yes/No or True/False field choices as blank



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- labels when viewing a survey page or instrument for a given translated language. (Ticket #123271b)
- Bug fix: When using the Field Finder feature on the toolbar on pages containing JSON, it might mistakenly appear in the search results in certain cases when UTF-8 encoded text is used in field labels.
- Bug fix: Resolved issues where UTF-8 encoded text in field labels gets truncated and displayed in various places throughout REDCap, in which it would sometimes mistakenly display a black-diamond-with-question-mark character at the point of truncation in the label.
- Bug fix: The logged event "Change participant invitation preference" (when using Twilio) would mistakenly not be tied to the record name when filtering the logging results by a specific record. (Ticket #123515)

Version 12.2.4 (released on 2022-02-21)

CHANGES IN THIS VERSION:

- Improvement:** When using Multi-Language Management, in which some of the Default language text has changed since the text was translated, the new "Review Changed Items" dialog on the MLM page will now display an "Export" option to export as JSON or CSV all the translated items that need to be reviewed and/or retranslated.
- Improvement:** If the Multi-Language Management feature is disabled for a project, it will now show a red notice at the top of the MLM page.
- Major bug fix:** When using Multi-Language Management, system-provided languages could not be successfully imported and/or might cause issues downstream, such as displaying all User Interface items mistakenly in the "Review Changed Items" dialog.
- Bug fix: In some specific scenarios when using PHP 8.0 or 8.1 with some longitudinal project, the Online Designer might mistakenly crash with a fatal PHP error. (Ticket #123103)
- Bug fix: When piping field variables into the value of a @PLACEHOLDER action tag, if the Multi-Language Management feature is enabled on that particular instrument, some HTML tags might mistakenly appear inside the placeholder text for that field.
- Bug fix: When using Multi-Language Management and changing an enumerated value (e.g., choices, Action Tags), the "reference change tracker" was wrongly highlighting some items on the page.
- Bug fix: When a Secondary Unique Field is designated in a project while its two display-related checkbox sub-options are left unchecked, then when viewing a data entry form for an instrument that was completed via survey (as opposed to via data entry form), the value and/or label of the SUF would



mistakenly be displayed at the top of the data entry form. (Ticket #122127)

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version 12.2.3 (released on 2022-02-18)

CHANGES IN THIS VERSION:

- **CDIS NOTICE:** If you are actively using any CDIS service (Clinical Data Pull or Clinical Data Mart), please be aware that this upgrade might take longer than usual (possibly 10-30 minutes if you have several projects using CDIS) due to some back-end database changes related to CDIS. If you are not using CDIS, this upgrade will be fairly fast, as usual.
- **Minor security fix:** A vulnerability was discovered where malicious user could potentially exploit it by manipulating an HTTP request for the project Calendar page popup, in which some minimal amount of data from the calendar event could be exposed to a REDCap user for a project to which they do not have access.
- **Improvement:** The Codebook now contains a "Field Finder" to allow users to quickly search for a field by keyword or phrase in the field label or by variable name. Also, the gray "Instrument Name" rows in the table will float at the top of the page while scrolling so that it is always apparent the instrument to which a field belongs. Additionally, when scrolling down the page, an up-arrow image will appear at the bottom right of the page that (when clicked) will quickly scroll the page back to the top.
- **Improvement:** When using Multi-Language Management, it will now display a list of possible issues to users when entering the page if any elements have been modified since they have been translated. For example, if a field label is translated, and then a user modifies the Default language text via the Online Designer, the MLM page will display a warning in a popup dialog that will ask the user to confirm that the current translation is okay or else to provide a new translation to match the updated Default text. This will help notify users about potential issues with their translations to keep them updated if they are still modifying the Default language text in the project.
- **Improvement:** Piping can now be performed inside the value of the @PLACEHOLDER action tag - e.g., @PLACEHOLDER="[first_name] [last_name]".
- **Change/improvement:** Two new LOINC codes added to CDIS mapping.
- **Various fixes and improvements** for the External Module Framework.
- **Bug fix:** A new system-level configuration setting was added to the User Settings page in the Control Center to allow admins to select the default instrument-level user access that gets set for all project users' Data Viewing Rights and Data Export Rights whenever a new instrument is created while in production status. The available options are "No Access" (default) and "View &



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Edit/Full Data Set". Many administrators have noted that the sudden change in REDCap 11.3.0 for default instrument-level user access for new instrument while in production has caused quite a lot of confusion for users and has significantly increased the support workload of administrators. Despite being a new system-level option, this is considered a bug fix because it serves to restore continuity with previous versions by allowing admins (if desired) to revert the behavior back to the way it behaved in pre-11.3.0 versions. (Ticket #120976)

- Bug fix: Fixed some inaccurate instructional text at the top of the "Help & FAQ" page.
- Bug fix: When processing REDCap logic, in some specific instances with specific logic, which may also be dependent upon PHP version, a fatal PHP error might occur and might crash the page. (Ticket #122418)
- Bug fix: When using Multi-Languagement Management and defining a Fallback language that is different from the Default language, any User Interface text on a survey page or data entry form might mistakenly be displayed in the Fallback language when the Default language has been selected as the display language.
- Bug fix: If an external module utilizes the "redcap_pdf" hook while the system-level "redcap_pdf" hook (in the hook functions file) is also being utilized to perform custom tasks on the server, the results returned from the EM PDF hook would mistakenly not get utilized downstream. (Ticket #122775)
- Various fixes and improvements for Clinical Data Interoperability Services, including the following:
 - Improved logs for all FHIR interactions with the EHR system.
 - Better error messages for all CDIS apps.
 - Mapping helper link in the CDIS panel (only for users allowed to use it).
- Bug fix: The datepicker widgets used for the time window search on the Email Logging page in a project would mistakenly not stay visible in certain cases when trying to use them. (Ticket #122811)
- Bug fix: The URL for the example Login Page logo used on the REDCap Install page mistakenly pointed to a non-existent image/URL.
- Bug fix: When attempting to send outgoing emails (e.g., survey invitations, alerts), if the email subject is left empty, it might prevent the email from sending successfully.
- Bug fix: In certain situations with longitudinal projects, the Form Display Logic might mistakenly not function correctly to enable/disable the right instruments. (Ticket #122974)
- Bug fix: When creating a longitudinal project via a Project XML file, the form-event mapping might mistakenly not get saved during the project creation process.
- Bug fix: When exporting and then importing a Project XML file to create a new project that has some Form Display Logic defined, if the project is longitudinal and has some Form Display Logic conditions that references an instrument on "[All Events]", those



Form Display Logic conditions might mistakenly not get saved during the project creation process.

- Bug fix: When viewing the table of user profiles on the User Rights page, the Can Viewing Rights column would mistakenly display "Hidden (No Access)" for any users that have "View & Edit" rights along with the "Edit survey responses" checkbox checked for one or more instruments. If the "Edit survey responses" checkbox is not checked, it would correctly display "View & Edit" in the table.
- Bug fix: When editing an existing report that has fields selected via the drop-down lists in Step 3 (Filters), then the user clicks the "Use advanced logic" link, then the user clicks the "Use simple logic (choose fields from list)" link, then if they select a field in the first filter field drop-down (which has no field selected), it would mistakenly not display a new field/row immediately below that row. Thus, the user is not able to add more than one filter field for the report in this scenario unless they save the report and reload it to edit it again. (Ticket #18065)

Version 12.2.2 (released on 2022-02-11)

CHANGES IN THIS VERSION:

- **Improvement:** Each tab on the "Help & FAQ" page now has a drop-down list of subsections that, when selected, will auto-scroll the webpage down to that subsection on the page.
- **New feature:** When using the survey setting "Save a PDF of completed survey response to a File Upload field", users can now optionally set this feature to store the translated version of the PDF if the Multi-language Management feature is being utilized for the survey. This can be enabled by checking the "Store the translated version of the PDF" checkbox below the "Save a PDF..." setting on the Survey Settings page for the desired survey. (Ticket #121955)
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into the values of Text Box and Notes Box fields that are piped somewhere else on the same page as where the field exists. This does not occur if they are piped into a different instrument, different event, or elsewhere in the project.
- Bug fix: A field's question text on a survey page might mistakenly not get recognized by certain screen reading software, especially if the survey has the "enhanced radio buttons and checkboxes" setting enabled. (Ticket #121765)
- Bug fix: When attempting to upload a data dictionary with calculated fields or @CALCTEXT fields that contain Smart Variables inside their calculation, REDCap might mistakenly return an error message saying that the Smart Variables are not real variables, thus preventing the user from uploading the data dictionary.



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- Bug fix: In some edge cases when viewing the user table on the User Rights page, a user might mistakenly not have Data Export Rights for any instrument, its prior to modifying their privileges. In this case, it will simply revert them to having no access export rights.
- Bug fix: Too many Google services were mistakenly included during the recent bundling of the Google PHP API Client Services library, thus causing REDCap's resulting code to bloat unnecessary by an extra 15,000 files.
- Bug fix: The contents of the email sent to a participant after clicking the "Save & Return Later" option in a survey were mistakenly not translatable via the Multi-language Management feature.
- Bug fix: When adding a field to a project in production while in draft mode, an incorrect error message is displayed if the field is being added below a section header. (Ticket #122044)
- Bug fix: A fatal PHP error might be thrown in very specific instances when using PHP 8.0 . (Ticket #122182)
- Bug fix: Users that have "No Access" data export rights for a given instrument would mistakenly not be able to download a PDF with no data for that instrument either on the Online Designer or at the top of a data entry form when viewing the instrument.
- Bug fix: A fatal PHP error may occur on the Online Designer page for PHP 8.0 in certain situations. (Ticket #122108)
- Bug fix: The table displaying user privileges on the User Rights page might mistakenly display incorrect counts under "Data Export Rights" and "Data Viewing Rights" due to some instruments having been deleted or orphaned.
- Bug fix: Resolved some potential upgrade issues occurring with SQL queries failing in some particular situations when upgrading to REDCap 11.2.0 or higher. (Ticket #121952)
- Bug fix: When a project has record auto-numbering enabled, and a user creates a record, renames it, and then deletes it, the next record to be created would mistakenly not have the same record name as the one deleted (assuming no other records had been created during the interim). It is assumed that the next record would have the same name as the deleted one. (Ticket #122090)
- Bug fix: When piping the value of a MDY or DMY formatted date or datetime field into the min or max validation range attribute of another date or datetime field, in which the field being piped exists on a different instrument or event, the out-of-range error message would fail to display to the user when the value is out of range and would thus result in a JavaScript error. (Ticket #121964)
- Bug fix: When adding hyperlinks into a field label, survey instructions, etc., in which the hyperlink URL contains "on" and also "=" somewhere inside it, the URL might mistakenly get mangled when output on the page in which "onXXXXX=" will be replaced with the word "replaced=". (Ticket #121691)
- Bug fix: For date-validated Textbox fields that utilize the @FORCE-MINMAX action tag with "today" as the min or max range value, it might be possible to bypass the min/max range check if



users/participants use the datepicker widget a specific way, such as clicking the calendar icon to open the datepicker but then click the submit button on the page.

- Bug fix: When uploaded files are being stored on the server (e.g., when copying a project containing Descriptive Text fields with file attachments), if the file somehow can't be found or accessed on the server, it would throw a fatal PHP error in PHP 8.0. (Ticket #122496)
- Bug fix: When required fields are left empty on a data entry form that is submitted, thus displaying the required fields popup, and then the page is refreshed, it would mistakenly keep displaying the required fields popup to the user even when the required fields might have been given values in the interim. (Ticket #122480)
- Bug fix: When using [survey-date-completed] or similar Smart Variables inside the conditional logic for Automated Survey Invitations, it might cause the page to crash when submitting a survey or data entry form, resulting in a fatal PHP error. (Ticket #122473)
- Bug fix: If an instrument is exported as a PDF with data, in which the instrument contains slider fields that display the slider value next to it, the slider's value displayed in the box next to the field in the PDF would mistakenly always be normalized to be between 0 and 100, rather than displaying the literal value as-is. (Ticket #122035)
- Bug fix: Data Quality rule F might mistakenly return false positives for fields that exist on repeating instruments in a longitudinal project, especially when the field's instrument is also utilized as a non-repeating instrument in another event. (Ticket #121343)
- Bug fix: When running PHP 8.0, the Stats & Charts page might fail with a fatal PHP error if number/integer fields somehow contain non-numeric values. (Ticket #122604)
- Bug fix: When upgrading to REDCap 11.4.1 or higher, the SQL upgrade script might mistakenly crash with an error on a certain query. (Ticket #122565)
- Bug fix: When using Multi-Language Management and translating a survey that has Stop Actions, the User Interface text for the title of the Stop Action popup (i.e., "End the survey?") would mistakenly not appear in its translated form. (Ticket #122644)
- Bug fix: When importing the JSON or CSV language file for Multi-Language Management, labels might mistakenly not get updated to their translated form for option choices for some multiple choice fields. (Ticket #122636)
- Bug fix: Some text was changed in the Tableau section of the "Other Export Options" tab on the "Data Exports, Reports, and Stats" page because it could be confusing to users if certain institutions have special licensing and/or policy with regard to the installation of Tableau. (Ticket #122618)
- Bug fix: If a user is assigned to a Data Access Group, the "Select a previously sent email" drop-down list in the "Compose Survey Invitations" popup on the Participant List page would mistakenly



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not filter out previously-sent emails pertaining to records that belong to other DAGs. (Ticket #122495)

- Bug fix: If more than 500 instances of the @IF action tag are used for a field, whether needed or used in parallel, all the @IFs listed after the 500th @IF would mistakenly not get processed, thus causing the @IFs not to function correctly on the field.
- Bug fix: The "Break the Glass" feature in Clinical Data Pull (CDP) was mistakenly not able to perform a successful login for the user, thus was not able to break the glass for a record.
- Bug fix: When creating a new project using a Project XML file with an API super token, in some particular use cases depending on the exact setup of the project and its data, the API request might mistakenly crash or might not complete the process if any record data exists inside the Project XML file. (Ticket #121579)
- Bug fix: Clicking a slider field to initialize it would mistakenly not immediately trigger its value to be piped if the slider is piped elsewhere on the same page. It would only pipe if the slider's value was modified after its initialization. (Ticket #122704)
- Bug fix: A warning message would mistakenly be returned when attempting to upload a data dictionary containing checkboxes with a dot/period in a checkbox choice coded value, in which that checkbox choice was being referenced in a calculation or branching logic. Notes: Dots/periods are allowed in a checkbox choice code. (Ticket #122581)
- Bug fix: When uploading a file for a File Upload field via the API Import File method, the resulting logged event on the project logging page would only display the field name when it should instead display the field_name and back-end edoc ID value for the file in the logged event description. This was changed because it was inconsistent with the logging produced when uploading a file via the user interface. (Ticket #122272)
- Bug fix: Text Box fields with the @SETVALUE action tag would always display the red bar on the side of the field (regardless of the value) when instead the red bar should only be displayed when the saved value is different from the displayed value.

Version 12.2.1 (released on 2022-01-28)

CHANGES IN THIS VERSION:

- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way for certain features of REDCap Messenger.
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into the title of a project.
- **Improvement:** When performing a keyword search on the "Help & FAQ" page, it now displays in red a count of keyword matches for each category in the tabs near the top of the page. Previously,



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the user would have to click on each tab in order to know if there were any keyword matches in that particular category.

- Change: Improvement to the Configuration checker page which now provides a new resolution option – increase the "max_allowed_packet" setting in MySQL if it has a value below 16 MB. Having a lower value for that setting could cause some large data exports or reports to fail to load.
- Bug fix: Some of the example R code in the API Playground mistakenly referenced a function named "fileUpload()" when it should instead be "upload_file()". (Ticket #101454b)
- Bug fix: Data Quality rule E was mistakenly using the median and not the mean for the field when determining if the value was an outlier (e.g., two standard deviations from the mean). (Ticket #121704)
- Bug fix: Some password-related configuration settings for Table-based authentication might mistakenly contain trailing spaces in their value, thus possibly preventing the settings from working as expected. (Ticket #121716)
- Bug fix: The REDCap cron job might crash unexpectedly when attempting to send an Alert containing a [survey-link] Smart Variable when the project does not have any surveys enabled. This only occurs in PHP 8.0 and 8.1. (Ticket #121644)
- Bug fix: For date-validated Textbox fields that utilize the @FORCE-MINMAX action tag with "today" as the min or max range value, it might be possible to bypass the min/max range check if users/participants use the datepicker widget a specific way, such as clicking the calendar icon to open the datepicker but then click on another part of the page.
- Bug fix: Image attachments on Descriptive Text fields would mistakenly not display inline on the page when viewing them in the Online Designer. Bug emerged in REDCap 12.2.0.
- Change: For automated survey invitations and alerts that are using the date/datetime field option that determines the timing of when the invitation/alert should be sent, some extra clarifying text has been added to the popup/popover instructions that explains that modifying the value of the date/datetime field will have no effect on invitations/alerts that have already been scheduled.
- Bug fix: Survey Queue settings in the "Set Up Survey Queue" popup would mistakenly not get saved for a survey that is currently set to "offline" status. (Ticket #121668)
- Bug fix: When a user assigned to a Data Access Group is using the Data Resolution Workflow, the Resolution Metrics page would mistakenly display the "Average time for query response (by user in days)" chart when instead it should only display the chart for users who do not belong to a DAG. (Ticket #121527)
- Bug fix: When an alert or an automated survey invitation has conditional logic that contains datediff today/now, in which Smart Variables are used in the logic but no real field variables are used, the alert/ASI would mistakenly fail to be scheduled/sent by the datediff today/now cron jobs that run every 4 hours. (Ticket #121276)



Version 12.2.0 (released on 2022-01-

25)

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CHANGES IN THIS VERSION:

- **New feature: Instrument-level Data Export Rights**

- Users may specify instrument-level privileges regarding a user's data export capabilities on the User Rights page in a project. A user may be given "No Access", "De-Identified", "Remove All Identifier Fields", or "Full Data Set" data export rights for EACH data collection instrument. This improvement will make it much easier to match a user's Data Exports Rights with their Data Viewing Rights, if you wish, and will give users more granular control regarding what data a user can export from your project.
- Note: Whatever a user's data export right was in the previous version, that export right will be subsequently extrapolated to all instruments after upgrading. Thus, their export privileges will behave exactly the same as before.
- Improvement: The table displayed on the User Rights page that lists all users' privileges now includes an instrument count for each category for both Data Viewing Rights and Data Export Rights - e.g., "3 No access, 2 Full Data Set". This helps provide summary information regarding the user's instrument-level rights.
- Improvement: When adding/editing a user's or user role's privileges in the popup on the User Rights page, as a convenience, users may click the table headers for each Data Export Rights setting or Data Viewing Rights setting to set that setting for all instruments in the project (i.e., as a "check all checkboxes").
- Note: When adding a new data collection instrument to a project, if the project is in development status, all users will automatically receive "Full Data Set" data export rights for that new instrument. Whereas if the project is in production, all users will automatically receive "No Access" data export rights for the new instrument. This behavior matches how instrument-level rights currently work for Data Viewing Rights when adding a new instrument.
- Change: When importing or exporting users and/or user roles (whether as a CSV file on the User Rights page or via the API), the new instrument-level data export rights are represented as a new column named "forms_export" and are formatted exactly how instrument-level Data Viewing Rights ("forms") are currently formatted in comma-delimited fashion - e.g., "demographics:1,baseline_data:2,prescreening:3". In this format, the following represents each data export rights level: 0=No Access, 2=De-Identified, 3=Remove Identifier Fields, 1=Full Data Set.

- **New feature: Survey Start Time and related Smart Variables**

- REDCap now collects when participants begin a survey (i.e., the initial time the survey page is opened). Going forward,



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- any responses collected (partial or completed) will have their start time displayed at the top of the data entry form when viewing the response. NOTE: If the start time is applied to a response, it implies that the response began while on an earlier version of REDCap when start times were not yet collected.
- New Smart Variables for Survey Start Date/Time: Users can access the start time via piping by using the new Smart Variables [survey-time-started:instrument] and [survey-date-started:instrument], which can be used inside the @DEFAULT or @CALCTEXT action tags, among other places. If users wish to have them return the raw value, which will be in 'YYYY-MM-DD HH:MM:SS' format and would be more appropriate for conditional logic or calculated fields, simply append ':value' after the unique instrument name - e.g., [survey-date-started:instrument:value].
 - New Smart Variables for Survey Duration: Users can obtain the total amount of time that has elapsed since the survey was started (in seconds, minutes, etc.) by using [survey-duration:instrument:units] and [survey-duration-completed:instrument:units]. The Smart Variable [survey-duration] represents the difference between the survey's start time and either its 1) completion time (if completed) or 2) the current time (if not completed), whereas [survey-duration-completed] represents the difference between the survey's start time and completion time, in which a blank value will be returned if the survey has not been completed. Options for 'units': 'y' (years, 1 year = 365.2425 days), 'M' (months, 1 month = 30.44 days), 'd' (days), 'h' (hours), 'm' (minutes), 's' (seconds).
 - Improvement/change: To improve server performance, Descriptive Text fields that have image attachments will have their images loaded on the page incrementally with a slight delay between each to prevent the web server from getting overloaded with many simultaneous requests when the data entry form or survey page initially loads.
 - Bug fix: If a file is being imported via API for a File Upload field, in which the field's instrument is a repeating instrument, then it might make the instrument inaccessible in the user interface (e.g., Record Home Page, Record Status Dashboard) if no other field on the instrument contains any data for that instance. (Ticket #120354)
 - Bug fix: Issues might occur (e.g., blank white page) when installing REDCap on PHP 8.1 due to the setting "mysqli_report", which defaults to "MYSQLI_REPORT_ERROR | MYSQLI_REPORT_STRICT" in that version. This will also require replacing the redcap_connect.php (http://redcap_connect.php/) non-versioned file on the REDCap web server.
 - Bug fix: When attempting to send a File Upload field's file via Send-It from a data entry form, the popup window would display a blank page if using PHP 8.0 or higher. (Ticket #121163)
 - Bug fix: Remediated PHP 8.X-specific errors that occur when users alter URLs in unexpected ways.



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- Bug fix: The mouseover text displayed when hovering over the "Members: Everyone" text in the General Notifications channel in REDCap Messenger would mistakenly display the wrong text. (Ticket #121212)
- Bug fix: When performing calculations for a @CALCTEXT field (whether on a data entry form, survey page, data import, or Data Quality rule H), some dynamically-created regular expressions in PHP that search for other calculated fields or @CALCTEXT fields that are used within the original @CALCTEXT field might cause an overload due to the regular expression being too long, thus possibly resulting in not accurately determining dependent fields used inside the @CALCTEXT field's equation. This means that some @CALCTEXT fields might possibly not get their value updated successfully. (NOTE: This is a very similar but slightly different fix for the bug fix with the same description in the previous version.)
- Bug fix: When using the Auto-Archiver or e-Consent Framework on a survey while also setting the Stop Action survey option to "Do not save the survey response", when a participant triggers a stop action on the survey, it would mistakenly display the error message "X is not an existing record in this project!" at the bottom of the page. (Ticket #121166)
- Bug fix: When an administrator is approving a To-Do List request to make a user's report "public", after clicking the "Click here" link to view the report while inside the approval dialog, it would cause the dialog to flash and then go white, thus preventing the admin from approving the request (unless they went into the project manually and viewed that report before returning to the To-Do List request). (Ticket #120893)
- Bug fix: Small change to text in the Two-Factor Authentication settings on the "Security & Authentication" page to improve clarity of the option IP Exception setting used for 2FA.
- Bug fix: When loading the Participant List inside the "Compose Survey Invitations" popup, it would mistakenly take an unnecessarily large amount of time to load a list of thousands or more participants for certain surveys.
- Bug fix: If using WebDAV as the File Storage Method for the following system-level settings 1) 'File Upload' field enhancement: Password verification & automatic external file storage, 2) Record-level Locking Enhancement: PDF confirmation & automatic external file storage, or 3) e-Consent Framework: PDF External Storage Settings (for all projects), these features may no longer be storing files successfully to the external server. A new "authentication type" setting for WebDAV only has been added to all 3 settings on the "Modules/Services Configuration" page in the Control Center to allow an administrator to set the WebDAV authentication as "Basic", "NTLM", or "Digest" (depending on the local configuration of the WebDAV server being used). Setting the WebDAV authentication type appropriately for each of the 3 settings (if being utilized) should fix this issue.
- Bug fix: The Google OAuth2 authentication would fail to work in PHP 8.0 and 8.1, thus resulting in a fatal PHP error when



attempting to log in. (Ticket #121050)

- Bug fix: For some projects, the Multi-language Management page might get stuck during its initialization, thus preventing users from using it. (Ticket #12063)
- Bug fix: In some situations when clicking the table headers of the Participant List table, all cells in the Participant Identifier column that were previously editable would mistakenly become no longer editable.
- Bug fix: The Multi-Language Management feature would mistakenly not say that "100%" of all translatable phrases/words were translated, even though they were. (Ticket #121497)
- Bug fix: When using the Multi-language Management feature, some embedded multiple choice fields might mistakenly not appear in the expected translated language on a data entry form or survey page. (Ticket #121557)

Version 12.1.2 (released on 2022-01-14)

CHANGES IN THIS VERSION:

- Bug fix: A project dashboard with custom access settings might mistakenly not be accessible to administrators using the "View project as user" feature.
- Bug fix: When creating or editing a Project Dashboard that has been set as "public", the option to create a custom public link would mistakenly not be displayed on the page (assuming that the URL Shortening Service is enabled at the system level).
- Bug fix: When creating or editing a report that has been set as "public", the option to create a custom public link would mistakenly not be displayed on the page (assuming that the URL Shortening Service is enabled at the system level).
- Bug fix: If using the @CALCTEXT action tag on a datetime field, in which the [survey-time-completed] Smart Variable is referenced inside @CALCTEXT(), the resulting value might cause the calculation error popup to display on a survey or data entry form, and the value might not save correctly on the form/survey, via data import, or via running Data Quality rule H. This issue occurs mostly when using field validation with formatting H:M (rather than H:M:S) and also with formatting MDY or DMY (rather than YMD).
- Bug fix: If a date or datetime field was using the @HIDEBUTTON action tag, the date format label (e.g., "M-D-Y") would mistakenly not be displayed on the right.
- Bug fix: The Concurrent Users chart on the Activity Graphs page in the Control Center would mistakenly not display all past data in the chart. (Ticket #120921)
- Bug fix: PHP error occurs for PHP 8.0 or 8.1 when downloading Automated Survey Invitations as a CSV file in the Online Designer. (Ticket #120965)
- Bug fix: When piping data on an instrument for a field from another instrument while also using the Multi-language



Management feature for the current instrument, the piped value might mistakenly not display on the page.

- Bug fix: When performing calculations for @CALCTEXT fields (whether on a data entry form, survey page, data import, or Data Quality rule H), some dynamically-created regular expressions in PHP that search for other calculated fields or @CALCTEXT fields that are used within the original @CALCTEXT field might cause an overload due to the regular expression being too long, thus possibly resulting in not accurately determining dependent fields used inside the @CALCTEXT field's equation. This means that some @CALCTEXT fields might possibly not get their value updated successfully.
- Bug fix: Some long-running reports might mistakenly return the error message "An unknown error has caused the REDCap page to halt..." in specific edge cases.
- Bug fix: If an alert has an [aggregate-X] Smart Variable piped into the alert's email body, it might cause the cron job to crash when attempting to send the alert. (Ticket #120561)

Version 12.1.1 (released on 2022-01-10)

CHANGES IN THIS VERSION:

- **Major bug fix:** The new "Time (HH:MM:SS)" field validation might not have been stored correctly (and thus would not work successfully) if you previously upgraded to REDCap 12.1.0.
- **Major bug fix:** Some installations (depending on MySQL/MariaDB version) might mistakenly have a database structure issue involving the table "redcap_log_view_requests" after upgrading to REDCap 12.1.0. (Ticket #120622)
- Bug fix: The field drop-down for the "Designate a Secondary Unique Field" setting in the "Additional Customizations" popup on the Project Setup page would mistakenly not include some Textbox fields (notably those with no Action Tags or Field Annotation).
- Bug fix: When using Smart Variables that utilize the parameters ":fields" or ":instrument" in a calculated field or @CALCTEXT field, if the user is entering data on a form or survey, the calculation might mistakenly not get updated if fields used inside the Smart Variable exist on a different instrument or event.
- Bug fix: For certain server configurations, the REDCap cron job might mistakenly crash due to a floating point precision issue when creating a timestamp. This occurrence is fairly rare. (Ticket #120688)
- Bug fix: When using certain Smart Variables inside a calculation or @CALCTEXT field, a calculation error message might mistakenly appear on the data entry form or survey page and thus would prevent calculations from occurring on that page. (Ticket #120660)
- Bug fix: When a report contains data from a repeating instrument and/or repeating event, in which the report's checkbox setting



Version 12.1.0 (released on 2022-01-07)

CHANGES IN THIS VERSION:

- **New feature: Conditional logic for Survey Auto-Continue** - When enabling Survey Auto-Continue on the Survey Settings page for a survey, users may now optionally specify conditional logic to determine whether or not the auto-continue should be applied. As such, REDCap will auto-continue to the next survey **only** if the conditional logic is TRUE or if the logic textbox has been left blank. This new option can be used as a simpler alternative to the Survey Queue, which can require more complex instrument-event level configurations for longitudinal projects.
- **New feature: Dynamic min/max range limits for fields** - Instead of using exact values as the minimum or maximum range of Textbox fields (e.g., "2021-12-07"), you may now also use "today" and "now" as the min or max so that the current date or time is always used. These can be used to prevent a date/time field from having a value in the past or in the future. Additionally, you can now pipe a value from another field into the field's min or max range setting - e.g., [visit_date] or [event_1_arm_1][age]. This can help ensure that a Textbox field (whether a date, time, or number) has a larger or smaller value than another field, regardless of whether the field is on the same instrument or not.
- **New action tag: @FORCE-MINMAX** - The action tag @FORCE-MINMAX can be used on Textbox fields that have a min or max validation range defined so that no one will not be able to enter a value into the field unless it is within the field's specified validation range. This is different from the default behavior in which out-of-range values are permissible. Note: @FORCE-MINMAX is also enforced for data imports to ensure the value is always within the specified range.
- **New field validation: "Time (HH:MM:SS)"** - This new time-based field validation (unique name "time_hh_mm_ss") will be added automatically and enabled by default during the upgrade process. This validation forces users/participants to enter a time value that contains the hour, minute, and second components. It also includes the usage of the "Now" button and the timepicker popup widget, both of which are displayed next to the field on the survey page or data entry form. Note: Fields with this field validation can be utilized inside the datediff() function. (Thanks to the Field Validation Committee for this addition.)



- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way as user defined text in various places.
- **Minor security fix:** If a field contains integer values (e.g., Textbox, Radio, Drop-down) for a record, and then the field is changed to be a File Upload field, viewing a data entry form or a report that contains that field might (depending on the pre-existing integer value of the field) mistakenly expose the filename of files that have been uploaded to other File Upload fields, including possibly those from other projects. Users are not able to download these uploaded files or view their contents, but can view the filename of the file on a data entry form or a report.
- **Minor security fix:** A Blind SQL Injection vulnerability was found on the Cron Jobs page in the Control Center, in which a malicious user could potentially exploit it by manipulating an HTTP request on that page.
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into the URL on the API Tokens page in the Control Center and also on the API page in a project.
- **Major bug fix:** In a longitudinal project with Data Access Groups, importing data via the "Import Records" API method for an existing record that is assigned to a DAG, in which the API parameters format="json" and overwriteBehavior="overwrite" are used, if the JSON data being imported contains a non-blank value for the "redcap_data_access_group" field for one event while another event of data (for the same record) does not contain the "redcap_data_access_group" field at all in the JSON, REDCap would mistakenly perceive the absent "redcap_data_access_group" field as a blank value and thus would un-assign the record from the DAG (due to the overwriteBehavior="overwrite" parameter being used). When this occurs, the DAG unassignment event would also not get logged on the project Logging page.
- **Improvement:** For projects using the Clinical Data Interoperability Services (CDIS), a new observation category "social history" was added for both CDM and CDP projects, thus allowing them to import this new type of EHR data into REDCap.
- **Improvement:** New CDIS panel on the left-hand project menu to display information and links that are relevant to projects using either Clinical Data Pull or Clinical Data Mart.
- **Change:** When using the Auto-adjudication feature in a Clinical Data Pull (CDP) project, in which it has been set to notify the user via REDCap Messenger whenever a record has been auto-adjudicated by the system, REDCap now automatically deletes all previous auto-adjudication Messenger threads for this project for the user. In previous versions, the user might receive thousands of Messenger notifications, which could cause REDCap itself to become sluggish for the user. Now it only keeps the latest notification for the user.



- Various updates and changes to the External Module Framework, including a slight change to the EM link on the left-hand project menu (the "External Module" link was replaced with "Change" further down the project menu).
- Change: In the database backend, the "redcap_log_view" database table will be renamed to "redcap_log_view_old", and an empty replacement table (named "redcap_log_view") will be created in its place. The old table and its contents will no longer be used in the application except for very specific, seldom-used functionality (e.g., viewing Page View events on a project's Logging page). The new table will have a slightly different structure, such as a BIGINT primary key (instead of INT) and better/more indexes to improve query performance for the table. The retiring/renaming of the old table should not have any effect on plugin/hook/module developers unless you are performing direct queries on the "redcap_log_view" table to pull information from months or years in the past, in which case you would want to also query the "redcap_log_view_old" for such information. Note: During the upgrade process, the last 30 minutes worth of activity from redcap_log_view will be automatically transferred to the new table in order to maintain continuity within the application for before and after the upgrade, especially if the system is not taken offline during the upgrade.
- Bug fix: Drop-down fields using the auto-complete option would cause the webpage to be slow/laggy when typing a value into the field's textbox or when clicking the down-arrow button for the field to view the full list of choices if the field has hundreds or thousands of choices defined. This slowness was due to the auto-complete feature not being set up correctly in the underlying JavaScript. Note: Clicking the down-arrow button for an auto-complete drop-down with 1000 choices when the field has no value will now display a notice next to the field that the full list of choices cannot be displayed and instead encourages the user to type a value to search all options.
- Bug fix: When referencing a Smart Variable inside conditional logic (e.g., Data Quality rules, ASI logic) in which the Smart Variable is appended with a colon parameter while also being prepended with a unique event name (e.g., [event_1_arm_1] [survey-date-completed:form_1]), the logic might fail to be successfully evaluated. This could cause Data Quality rules to throw an error or could cause survey invitations for ASIs not to get sent in specific cases. (Ticket #120543)
- Bug fix: When a multi-page survey contains required fields that exist on pages after page 1, in some specific scenarios it might mistakenly display the "Some fields are required!" prompt for fields on later pages after submitting the first page. Note: The participant would still be allowed to continue to the next page after the initial submission of page 1. (Ticket #120518)



CHANGES IN THIS VERSION:

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- **Security improvement:** Any third-party (i.e., external service) API keys/secrets that are currently stored in the redcap_config database table via a System Configuration page in the Control Center (e.g., AWS S3 secret key, Twilio Auth Token for two-factor authentication) will now have its value stored in encrypted format in the redcap_config table instead of being stored as plain text.

This will occur automatically and transparently after upgrading.

This will prevent anyone from obtaining these keys/secrets if they view the contents of the redcap_config table.

- **Minor security fix:** Updated "Axios" third party JavaScript package due to reported vulnerabilities.
- **Change:** The dialog that is displayed when editing a field's branching logic in the Online Designer, in which one or more fields have the exact same branching logic as the current field, contains different text to better explain what clicking "Yes" will do.
- **Bug fix:** When using specific configurations of the Survey Queue while running a specific PHP version on the REDCap web server (PHP 8.0 or 8.1?), it might cause the survey page to suddenly crash with a fatal PHP error after completing a survey. (Ticket #120211)
- **Bug fix:** A calculation error would occur (displaying the error popup) on a survey page or data entry form if the @CALCDATE action tag is used on an MDY or DMY formatted date or datetime field, in which the first parameter of @CALCDATE contains an if() function where the first field used inside the if() is not a date or datetime field. (Ticket #119510)
- **Bug fix:** When an Ad Hoc calendar event is viewed in the calendar popup in a longitudinal project, it would mistakenly display the instruments designated for the first event in the Data Entry Forms list inside the calendar popup. Ad Hoc events should not display any forms in the calendar popup. (Ticket #120224)
- **Updates and various fixes for the External Module Framework,** such as the following: Fixed multiple issues with survey & NOAUTH CSRF protection, Added support for hidden subsettings, Improved log display performance, and Added project IDs to error emails.
- **Bug fix:** [scatter-plot] Smart Charts might not display their x-axis in correct numeric order for slider fields or some other fields with numeric data. Additionally, for this same situation [line-chart] Smart Charts might mistakenly display their x-axis as a categorical-type display rather than a linear-type display. (Ticket #120214)

Version 12.0.6 (released on 2021-12-23)

CHANGES IN THIS VERSION:



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- Change/improvement: New CDIS setting - "Identity provider (optional)" - If specified on the Clinical Data Interoperability Service page in the Control Center, the identity provider value used in the OAuth2 authorization process to identify the server that will exchange the FHIR access token with REDCap. This setting should only be set if the real FHIR base URL of the EHR system is different from the one specified on this page (e.g., the EHR system is behind a proxy).
- Bug fix: If database table structure issues exist, in which REDCap provides the SQL to fix the issue, the generated SQL might fail when executed on some versions of MySQL/MariaDB if the SQL contains queries to drop Primary Keys that are being used as Foreign Keys in other tables. The generated SQL now includes queries to drop the Foreign Key before dropping the Primary Key, and then also the SQL to re-add the Foreign Key after fixing the Primary Key.
- Bug fix: When using Clinical Data Pull or Clinical Data Mart and utilizing the "Break the Glass" feature, an authentication error might occur when attempting to use one's credentials to break the glass of a patient record, specifically when using LDAP authentication.
- Bug fix: When using the ":value" modifier when piping a field value while also referencing the unique event name and an X-instance Smart Variable (e.g., [c_hmcadrc_visit_re_arm_1][cog_behav_status:value][last-instance]), the label of the multiple choice field option mistakenly might get piped instead of the value of the selected choice. (Ticket #119879)
- Bug fix: Depending on the naming conventions of the records in the project, the records in the record drop-down list on the "Add/Edit Records" page might appear slightly out of order if Record Auto-Numbering was enabled after non-numerical record names had already been created in the project.
- Bug fix: The @RICHTEXT action tag would mistakenly not work on survey pages. (Ticket #119996)
- Bug fix: When making a call to REDCap::saveData() or to the "Import Records" API method to import record data for records that have been assigned to a Data Access Group, if the data being imported is for a longitudinal event that currently has no data for the record, then the project's Logging page might mistakenly denote the record as being created during the import process, despite the fact that the record already exists and has data in other events. In some very rare cases, this might additionally cause the record to get unassigned from its current DAG with no logging to indicate that this happened.
- Bug fix: Fields with the @CALCDATE or @CALCTEXT action tags could mistakenly be chosen as the Secondary Unique Field in the project, although this should not be allowed because it could cause the field not to perform its calculation correctly, especially if the field exists on a repeating instrument/event. As calc fields have never been allowed for use as the Secondary Unique Field, neither should @CALCDATE or @CALCTEXT fields. (Ticket #119773)



- Bug fix: Fields with the @CALCTEXT action tag might mistakenly (in specific situations) return an incorrect result if values with leading zeros are utilized in the equation, resulting in the value "07" would be returned as "7". This would mostly occur when evaluating radio or drop-down fields that have leading zeros for one or more choice codes but do not have any choice codes that contain letters. (Ticket #120024)

Version 12.0.5 (released on 2021-12-17)

CHANGES IN THIS VERSION:

- **New feature:** New design for the "Help & FAQ" page.
- **New Smart Variable: [event-number]** - The current event's ordinal number as listed on the Define My Events page that denotes the order of the event within a given arm. (Ticket #70973)
- **Improvement/change:** The Define My Events page now displays a new column to display each event's Event ID number. Also, the Smart Variable corresponding to each column in the table on the Define My Events page (e.g., [event-number], [event-label]) are displayed in small gray text below the header text in the table to help users more easily learn where the values of those Smart Variables originate. (Ticket #115791)
- **Improvement:** When using OAuth2 Azure AD Authentication, you may now specify a different AD attribute whose value determines the REDCap user's username. By default, it uses the AD attribute "userPrincipalName", which often resolves to the user's email address. The Security & Authentication page has a new drop-down setting to allow admins to alternatively specify the AD attribute "samAccountName", which would resolve to something like "pharris", for example. This provides an option if the institution prefers not to use a user's email address as their REDCap username. Note that this setting does not change the Azure AD login name, which is still the user's email address / userPrincipalName. Administrators may want to select the samAccountName to help retain account usernames when transitioning from LDAP to Azure AD, or if samAccountName is considered an immutable (and thus more reliable) user ID at your institution.
- **Change:** Although REDCap sets the cookie "samesite" attribute to "Lax" by default, the "samesite" attribute can be overridden by adding the following line of code in the REDCap [database.php](#) (<http://database.php/>) file on the web server:
`$GLOBALS['cookie_samesite'] = "None"; // Possible values: "None", "Lax", or "Strict".`
- **Bug fix:** After a participant clicks the "Save & Return Later" button on a survey and then attempts to send themselves the survey link for returning, the resulting confirmation dialog titled "Email sent!" would mistakenly have the word "undefined" inside the



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- Bug fix: dialog rather than the correct stock language text "The email was successfully sent to:". (Ticket #119428)
- Bug fix: Various JavaScript driven messages displayed on data entry forms and survey pages would mistakenly display "undefined" instead of the correct text.
- Bug fix: REDCap now automatically sets `mysqli_report` to OFF for better compatibility with PHP 8.1, which defaults this setting to `MYSQLI_REPORT_ERROR | MYSQLI_REPORT_STRICT`. Without setting this, PHP might fail with a fatal error whenever a query to MySQL fails, but this only occurs for certain configurations of PHP 8.1.
- Bug fix: Typo in Shibboleth authentication settings in the Control Center.
- Bug fix: When using OAuth2 Azure AD Authentication, the usernames set on the Security & Authentication page for Primary Admin and Secondary Admin were case-sensitive. They are now case-insensitive so that the admin usernames can be entered in any case and will still work.
- Bug fix: When using certain versions of MySQL or MariaDB, the Easy Upgrade or Automatic Upgrade features might mistakenly not be allowed, in which REDCap might think that the REDCap MySQL user does not have "DROP" privileges for the database. (Ticket #119577)
- Bug fix: If records are named a specific way in a project, they might appear out of order when displayed in certain contexts, such as if the record list spans multiple pages on the Record Status Dashboard. (Ticket #119189b)
- Bug fix: When uploading an allocation file on the Randomization page, it might mistakenly allow the user to upload multiple allocation files while on the same page. This should not be allowed. (Ticket #119640)
- Bug fix: When using the Multi-language Management feature to translate the choice labels of Yes/No and True/False fields, those choice labels would mistakenly not appear translated in downloaded PDFs of an instrument (both with and without data).
- Bug fix: If a "<>" operator is used in a field's Field Annotation/Action Tags, then the operator would mistakenly not be displayed in the Codebook. (Ticket #119705)
- Bug fix: In situations where slider fields should be disabled on a data entry form (e.g., user has read-only Data Viewing Rights for the instrument), sliders could mistakenly become editable on the page if clicked. Note: Since the user cannot submit the page in this situation, it does not affect data, but can be confusing. (Ticket #119760)
- Bug fix: When utilizing [aggregate-X] Smart Variables in a calculated field or @CALCTEXT field, if the user is entering data on a form or survey, the calculation might mistakenly not get updated if fields used inside the [aggregate-X] Smart Variable exist on a different instrument or event. However, the `calc/@CALCTEXT` field would get correctly updated when running Data Quality rule H or when performing a data import.



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- Bug fix: An error message would mistakenly be displayed when attempting to pipe a field variable into the "Redirect to a URL" text box on the Survey Settings page.
- Change: Added the REDCap username to the email subject of REDCap Messenger email notifications to help distinguish them if the same primary email address is used for multiple users.
- Bug fix: The cron job that sends email notifications for REDCap Messenger might mistakenly send multiple emails repeatedly to users. (This is an additional fix to the same bug fix from one month ago.)
- Bug fix: When using the Data Resolution Workflow, the DRW dialog would mistakenly not allow the user to reassign the data query to another user if the data query had been opened immediately after the field's data value had been "Verified". (Ticket #119758)

Version 12.0.4 (released on 2021-12-10)

CHANGES IN THIS VERSION:

- Change/improvement: A link to the "Language File Creator/Updater" page was added to the Control Center's left-hand menu in the Administrator Resources section.
- Change/improvement: When printing a report, the "Number of results returned" and "Total number of records queried" counts are now included in the printout of the page.
- Bug fix: The "RTL" dialog on the Multi-Language Management page in the Control Center would mistakenly be empty instead of having the appropriate text.
- Bug fix: A PHP fatal error would be thrown when attempting to edit a field in the Online Designer if using PHP 7.2. (Ticket #118919)
- Bug fix: When using newer versions of MySQL or MariaDB, the Easy Upgrade or Automatic Upgrade features might mistakenly fail in certain instances if the REDCap MySQL user does not have "REFERENCES" privileges for the MySQL database. (Ticket #119033)
- Bug fix: When pulling EHR data from the Conditions R4 endpoint for Clinical Data Pull or Clinical Data Mart, the condition's date value might mistakenly fail to get imported into the REDCap project.
- Changes and various bug fixes for the External Module Framework, including the following: Included cron start & end times in the cron log, Improved unit testing & psalm scanning (of the framework itself), and Improved performance of the "Logs" page.
- Bug fix: The variable name displayed for fields on the Codebook page would mistakenly display a square bracket after the branching logic instead of before it. (Ticket #119302)
- Bug fix: If a user is in a Data Access Group, the Participant List would display an incorrect count of how many visible participants



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are in the Participant List, and it might show some pages of the Participant List as being empty. (Ticket #119056)

- Bug fix: If records are named a specific way in a project (e.g., 7301-1-1-1-1-1-2), they might appear out of order when displayed in certain contexts, such as if the record list spans multiple pages on the Record Status Dashboard. (Ticket #119189)
- Bug fix: If a calculated field is using a datediff() function with a datetime field and with "today" as the first two parameters, it would mistakenly throw an error on the page that a calculation error exists. (Ticket #119049)
- Bug fix: When sending an SMS via Twilio, in which the Twilio API returns the error message "violates a blacklist rule", the survey invitation log would mistakenly not flag this error correctly with reason_not_sent = 'PARTICIPANT OPTED OUT' but instead would revert to the default reason_not_sent of 'ERROR SENDING SMS'.
- Bug fix: If HTML tags are used inside the Custom Labels for Repeating Instruments, whenever the dialog is reopened to edit the Custom Labels for Repeating Instruments, the HTML tags will have been automatically removed. It should not remove the HTML tags that have been already saved. (Ticket #119244)
- Bug fix: When clicking the "export" link to download the results after running Data Quality rule A or B, it would be impossible to determine which field had the missing value for a given row/record if more than one field had a missing value for the whole set of results exported. To remedy this issue, the export file no longer lists each variable name as a separate column (like other DQ rules) but instead has a new "field" column that will list the variable name of the field with the missing value in each row. (Ticket #119276)
- Bug fix: When upgrading to REDCap 12.0.0 or higher and when the Form Render Skip Logic external module is being utilized for one or more projects, the upgrade script to auto-migrate all the FRSL settings into the new Form Display Logic feature might be slightly incorrect for some FRSL configurations (only affecting longitudinal projects). If the FRSL checkbox setting "Restrict this rule to specific events" is not checked but one or more events have been selected (which is not expected), the resulting behavior from the Form Display Logic would cause the form to be disabled for the selected event, whereas the FRSL module beforehand would disable the form on every event. The auto-migration script now has been changed to match the behavior of the FRSL module for this particular misconfiguration of the FRSL module. (Ticket #118353)
- Change: For new REDCap installations, the global setting "Minimum number of data points required to display Smart Charts, Smart Tables, or Smart Functions" has been changed from "11" to "5" since the previous default value was regarded as too conservative by many. For existing installations, this value can easily be changed on the User Settings page in the Control Center and additionally can be overridden for any project via the Edit A Project's Settings page.



- Bug fix: When displaying Smart Charts on a public Project Dashboard, in which the chart is grouped via a secondary field, in some specific cases where data is missing for the first field in the chart but not for the grouping field, the chart might initially not get displayed (instead of displaying the message "[INSUFFICIENT AMOUNT OF DATA FOR DISPLAY]") even when it does not meet the minimum data point criteria. (Ticket #119348)
- Bug fix: Custom Data Quality rules whose logic utilizes fields from repeating instruments might mistakenly return results that are duplicates or not relevant, such as displaying the base/non-repeating instance when all the fields in the logic exist on a repeating instrument. (Ticket #72996)

Version 12.0.3 (released on 2021-12-03)

CHANGES IN THIS VERSION:

- **Major bug fix:** When the "Enable support for Survey Auto-Continue" option is checked in the Form Display Logic setup dialog, the feature might mistakenly fail to evaluate the logic correctly during the Survey Auto-Continue process. Thus, it could cause some surveys to get skipped unintentionally.
- **Improvement/change:** When using Multi-Language Management on a survey, the current language name is now displayed next to the globe icon at the top right of the survey page so that participants more intuitively understand what the current language is and to click it to change the language.
- **Improvement/change:** The Online Designer now denotes whether a field on the instrument contains embedded fields inside its label, choices, notes, etc. by displaying a blue box saying "Contains embedded fields", similar to the green "Field is embedded elsewhere on page" boxes for embedded fields themselves. This will provide users with visual cues to know when and where field embedding is occurring.
- **Improvement:** The Design Checker feature for Clinical Data Mart now has improved descriptions of changes that will be made, including the severity of the design issue.
- Bug fix: When using vertical sliders on forms/surveys, the "Change the slider above to set a response" text would have a translucent background that might mistakenly cover part of the text field displaying the number value. (Ticket #118330)
- Bug fix: When using the Sponsor Dashboard or Browse Users->View User List By Criteria pages and clicking the "Time of latest password reset" link on the page, the resulting error message might be confusing if the user selects users in the table in which none of those select users log in via Table-based authentication (assuming the system authentication is LDAP Table or Shibboleth Table). More text has been added to the error message to inform the user that at least one Table-based authentication user must be selected in order to perform this action. (Ticket #118200)



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- Bug fix: If an admin has "Modify System Configuration Pages" admin rights but does not have "Access to all projects and data with maximum user privileges" admin rights, the admin's system was taken offline if the admin would mis-click, not be able to restore the system back to online status. (Ticket #118540)
- Bug fix: The "Save your changes?" prompt that is displayed when attempting to leave a Data Entry Form via closing the current window/tab might mistakenly cause a JavaScript error rather than displaying the prompt.
- Bug fix: When using Missing Data Codes for an embedded field with the ":icons" parameter set (e.g., {field1:icons}), the list of Missing Data Codes would fail to display after clicking the "M" icon for the embedded field. (Ticket #118636)
- Bug fix: When using Missing Data Codes for an embedded field with the ":icons" parameter set (e.g., {field1:icons}), in which the field is a Radio Button field, if the user clicks the "reset" link to reset the value of the field, it would mistakenly throw a JavaScript error. It would still correctly remove the value of the field and reset it, but it would appear to the user as if it did not.
- Bug fix: The Smart Variables [survey-time-completed] and [survey-date-completed] might not get evaluated correct when used in Survey Queue conditional logic. (Ticket #118452)
- Bug fix: When attempting to save a custom Record Status Dashboard in a non-longitudinal project, in which one or more instruments are selected for the "Select instruments" option, it would fail to save the selected instruments, thus resulting in displaying all instruments on the custom dashboard instead of only the selected ones.
- Change: To the right of the REDCap/PHP/MySQL versions listed at the top of the main Control Center page, a "copy" icon was added to allow administrators to easily copy those that version information text so that they may paste them elsewhere, such as when posting a question or bug report on REDCap Community.
- Bug fix: When a multi-arm longitudinal project does not have "arm 1" defined but has higher-numbered arms defined, it can cause certain things not to work correctly, such as branching logic, calculations, or action tags.
- Change: In the "Add Field"/"Edit Field" dialog in the Online Designer, it is no longer possible to tab into the Action Tags text box. This was changed because users found it a bit jarring for the Logic Editor dialog to automatically display as they are tabbing through the fields inside the "Add Field"/"Edit Field" dialog.
- Change: Light gray square brackets are now displayed around the variable name for each field on the Data Dictionary Codebook to aid users when searching for a specific field on the page (because it may sometimes be hard to find a field on the page if it is used in lots of branching logic or calculations).
- Bug fix: When attempting to do a fresh install of REDCap on PHP 8.0, the install page might mistakenly crash with a blank white page.
- Bug fix: When a public survey is completed and the "Save & Return Later" feature is not enabled for the survey, references to



the survey link via the Smart Variable [survey-link] might mistakenly allow participants to return to the completed survey when it should prevent them and could display the message "If you are interested, but you have already completed this survey" message. This could cause further confusion if a participant attempted to download a file for a File Upload field on that survey, in which it would prevent them from downloading it (via an error message); however, this might be confusing since the participant could access the survey page (via this bug) but not the downloadable file on the survey. (Ticket #118314)

Version 12.0.2 (released on 2021-11-29)

CHANGES IN THIS VERSION:

- Change: The Control Center now recommends using PHP 7.4, 8.0, or 8.1, which are the only currently supported versions of PHP (by the PHP Team).
- Bug fix: The "Add/Edit Records" page would display a green button with the incorrect text "Add new record for the arm selected above" for projects that do not have multiple arms. The button instead should say "Add new record".
- Bug fix: When upgrading from a version prior to REDCap 11.4.1, the upgrade SQL script might mistakenly fail when dropping an index on the `redcap_user_roles` table.
- Bug fix: When copying a project where Twilio is enabled, the various Twilio configuration settings would mistakenly not get copied. Note: The Twilio feature will still be disabled in the newly created project. (Ticket #118265)
- Bug fix: When using a Project Bookmark as an "Advanced Link", the API call that should return the various parameters (e.g., username, project_id) would mistakenly default to "xml" as the return format when instead it should default to "csv" if the "format" API parameter is not provided in the API request.

Version 12.0.1 (released on 2021-11-23)

CHANGES IN THIS VERSION:

- **Major bug fix:** When using Twilio SMS or Voice Call functionality on a survey, field labels or section headers might mistakenly not get included in the SMS message or Voice Call message unless one or more languages have been defined and are active on the Multi-Language Management page.
- Bug fix: When using Twilio SMS or Voice Call functionality on a survey, the choices for some multiple choice fields would mistakenly not appear in the correct translated language when one or more languages have been defined and are active on the Multi-Language Management page.



- Bug fix: When using Twilio SMS or Voice Call functionality on a survey, the survey instructions and completion text might mistakenly not appear in the correct translated language when one or more languages have been defined and are active in the Multi-Language Management page.
- Bug fix: Some rare adaptive PROMIS instruments that contain checkbox or textbox field types (e.g., PROMIS Sexual Function v2 Brief Profile (Female)) would crash in certain instances and prevent the participant from completing the survey whenever a participant attempts to answer a checkbox or textbox field on the survey page.

Version 12.0.0 (released on 2021-11-22)

CHANGES IN THIS VERSION:

- **New feature: Multi-Language Management**
 - Summary: Users can create and configure multiple display languages for their projects for surveys, data entry forms, alerts, survey invitations, etc. Users can design data collection instruments and have them be displayed in any language that they have defined and translated so that their survey participants or data entry persons can view the text in their preferred language. This eliminates the need to create multiple instruments or projects to handle multiple languages. NOTE: The MLM feature will not auto-translate text, but provides tools so that users may easily translate them themselves.
 - Usage: When entering data on a data entry form or survey, users and participants will be able to choose their language from a drop-down list or buttons on the page to easily switch to their preferred language for the text displayed on the page. This feature allows users to translate all text related to the data entry process, both for surveys and for data entry forms. Even various survey settings and email text can be translated. For users on data entry forms, if a language is selected, that selection is stored in the user's user account settings internally (in the REDCap backend database), whereas a survey participant's selected language will be stored in a cookie in their web browser as a way to remember their language preference if they return in the future (and also to maintain their selected language from page to page). The language can be pre-selected for a participant, if desired, using the "Language preference field" setting on the MLM page in the project or via the @LANGUAGE-FORCE action tags (seen below).
 - User Rights: Users must have Project Design/Setup privileges in a project in order to see the link to the Multi-Language Management page on the left-hand menu.
 - System-level Configuration: The MLM feature can be completely disabled at the system level, if desired, via the



MLM page in the Control Center (on the Settings tab). On this page in the Control Center, admins can optionally seed any User Interface (i.e., stock language) translations for their REDcap installation in which users could import any activated User Interface translations into their project. This will only import the User Interface elements (since those are universal to each project), but it can be a big time saver to prevent the user from having to translate those common elements in their project. These can be imported via the Create New Language process in a project (or via the Edit Language setting also).

- Note: The MLM feature works seamlessly with SMS messages sent via Twilio. Additionally, the MLM feature works with the e-Consent Framework, in which the archived PDF of the participant's consent form will be stored in the File Repository in the same language in which the participant took the survey.
- Note: When a project is in production, the MLM page and all translations can only be modified when the project is in Draft Mode. So if the user desires to make edits or additions to their translations, they must first enable Draft Mode via the Online Designer, and then return to the MLM page to make translation changes while in Draft Mode. When the drafted changes are approved, their translation changes made while in Draft Mode will automatically be approved together with them.
- **New Action Tags for Multi-Language Management**
 1. @LANGUAGE-CURRENT-FORM - Allows you to capture the currently used language in projects where multilingual data is enabled on data entry forms. The @LANGUAGE-CURRENT-FORM action tag can be used on fields of type 'Text Box' (no validation), and 'Drop-down List', or 'Radio Buttons' (these need to have choices whose codes correspond to the IDs of the defined languages - e.g., 'en'). This action tag is only active on data entry forms and will always, when possible, set the field's value to the currently active language.
 2. @LANGUAGE-CURRENT-SURVEY - Same as @LANGUAGE-CURRENT-FORM, but works only on survey pages. For multi-page surveys, @LANGUAGE-CURRENT-SURVEY needs to be used on a field of each page where capture of the language is relevant (e.g. for performing branching).
 3. @LANGUAGE-FORCE - When used on a field, the data entry form or survey on which the field is located will be rendered in the specified language (which must have been set up using the Multi-Language Management feature). The format must follow the pattern @LANGUAGE-FORCE="???", in which the ID of the desired language should be inside single or double quotes - e.g., @LANGUAGE-FORCE="de". Piping is supported - e.g., @LANGUAGE-FORCE="[field_name]". When the language



is forced successfully (i.e., it exists and is active), the language selector is hidden. Using this together with `@LANGUAGE-CURRENT-FORM/FORM/TYPE` on a survey event for `@LANGUAGE-FORCE` may be used to lock in a user to their selected language.

4. `@LANGUAGE-FORCE-FORM` - Same as `@LANGUAGE-FORCE`, but the effect is limited to data entry forms (i.e. this does not affect surveys).
 5. `@LANGUAGE-FORCE-SURVEY` - Same as `@LANGUAGE-FORCE`, but the effect is limited to surveys (i.e. this does not affect data entry forms).
 6. `@LANGUAGE-SET` - When used on a Drop-down or Radio Button field only, this action tag will allow the field's value to control the currently shown language (in the same way as switching the language via the buttons at the top of the page). Tip: When used in a survey, this field could be prepopulated (and thus auto-selected) by embedding a participant's language ID in the survey URL itself (for details, see the FAQ's "How to pre-fill survey questions" section).
- Thanks to Günther Reznicek for all his work to help us build the new Multi-Language Management feature.
 - **New feature: Form Display Logic**
 - Form Display Logic is an advanced feature that provides a way to use conditional logic to disable specific data entry forms that are displayed on the Record Status Dashboard, Record Home Page, or the form list on the left-hand menu. You might think of it as 'form-level branching logic'. Form Display Logic can be very useful if you wish to prevent users from entering data on a specific form or event until certain conditions have been met. The forms will still be displayed on the page, but they will be disabled in order to prevent users from accessing them. Below you may define as many conditions as you want. A form may be selected in multiple conditions, but if so, please note that the form will be enabled if at least one of the conditions is met. The Form Display Logic does not impact data imports but only operates in the data entry user interface to enable/disable forms. Additionally, Form Display Logic is not utilized by the Survey Queue at all but can affect the behavior of the Survey Auto-Continue feature if the checkbox for it is enabled in the setup dialog. The Form Display Logic setup can be found by clicking the "Form Display Logic" button at the top of the instrument list in the Online Designer.
 - This feature serves as the official integration of the Form Render Skip Logic external module created by Philip Chase and his team. Thanks to them for their work on this module. Note: When upgrading REDCap to v12.0.0 or higher, if the Form Render Skip Logic is installed and is being used by any projects, all the configuration settings for the module will automatically be translated into the new Form Display Logic settings format, after which the external module will be



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- disabled for each project and also for the entire system (since it will no longer be needed). This all happens automatically during the upgrade.
- **New feature: Design checker for the Clinical Data Mart (CDM)** - The "Data Mart Design Checker" is a new tool available in the Data Mart fetch page that will report any issue related to the design of the current Data Mart project. Based on the most recent Data Mart XML template available in REDCap, the tool will check, list, and fix any of these issues: missing forms, variables, revisions, or section headers, the lack/presence of repeatability in a form, variables included in the wrong form, etc. An administrator or a user with Project Setup/Design privileges can use the tool to review and automatically fix all reported issues. This tool will mainly be utilized when users have modified the structure of an existing Data Mart project or if new forms and data types have been added to the Data Mart feature itself since the users initially created their Data Mart project.
 - **Improvement:** Errors displayed in the Survey Invitation Log when sending SMS or Voice Calls via Twilio will now display the full error message returned by Twilio's API to provide the user with more information regarding why the SMS/Voice Call failed to send successfully.
 - **Major bug fix:** When a field is embedded on a multi-page survey, in which the embedded field's parent field is used in branching logic on a later page, the embedded field's value might mistakenly get erased when a later survey page is submitted if the embedded field is set as a Required field. (Ticket #117620)
 - **Bug fix:** The cron job that sends email notifications for REDCap Messenger might mistakenly send multiple emails repeatedly to users. (Ticket #97084b)
 - **Bug fix:** The x-axis of a [scatter-plot] Smart Chart would mistakenly not display in the correct sorted fashion. (Ticket #117202b)
 - **Bug fix:** Clicking the "Today" or "Now" button for a date or datetime field, respectively, would mistakenly add the green highlighted background to the field if that field is embedded. Embedded fields should never get highlighted as green like regular fields do. (Ticket #105242)
 - **Bug fix:** When using the "Copy multiple fields" feature in the Online Designer, on some occasions the process might mistakenly fail for some fields selected and would display them on the page as fields with empty variable names. (Ticket #117339)
 - **Change:** The text for the "Example code" link at the bottom of the API Playground was modified for clarity. (Ticket #117797)
 - **Bug fix:** When using specific PHP versions, the Clinical Data Pull (CDP) service might mistakenly throw a fatal PHP error when attempting to fetch data from the EHR. (Ticket #117953)
 - **Change:** When drafted changes are auto-approved in a production project, the "Changes Were Made Automatically" dialog now provides extra text reminding the user that if any new instruments were just added, by default no users in the project



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have access to any newly created instruments. Thus they might need to grant users access to the new instruments.

- Bug fix: When creating a new project or copying an existing one, the users that are initially granted access to the project would mistakenly not get logged as having been added to the project on the project logging page, thus making it very difficult for an auditor to determine exactly when and by whom the initial users had been given access.
- Bug fix: A fatal PHP error would occur that prevented an administrator from creating a Data Mart project on behalf of a user. (Ticket #117929)
- Bug fix: When using the Data Resolution Workflow in a project, the Resolve Issues page would mistakenly display data queries for fields that exist on instruments to which the user does not have data viewing privileges. (Ticket #118026)
- Bug fix: If a value is piped into a Descriptive Text field which is itself embedded in another field, then in some specific instances the Descriptive Text field's label would mistakenly not get embedded but only the piped value would get embedded. (Ticket #117925)

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david.surrao (/community/profile.php?id=10459)

commented • 2 weeks, 1 hour ago (2023-04-19

13:35)  [\(/community/post.php?id=203353\)](#)

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What time do new updates become available? I see that 13.4.9 was released today but 13.4.8 is the most recent that is available. [@rob.taylor](#)
(<https://redcap.vanderbilt.edu/community/profile.php?id=8>)

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rob.taylor (/community/profile.php?id=8)

commented • 2 weeks, 49 minutes ago (2023-04-19

[\(/community/profile.php?id=8\)](#)  [\(/community/post.php?id=203363\)](#)

[@david.surrao](#)

(<https://redcap.vanderbilt.edu/community/profile.php?id=10459>). It's available on the [Download Page](#)

(<https://redcap.vanderbilt.edu/community/custom/download.php>). If you're talking about it appearing in the UI of your local REDCap server, that check is done every few hours. You can run



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these SQL queries on your database to clear that wait time and force it to check immediately though.

```
UPDATE `redcap_config` SET `value` = NULL WHERE `redcap_config`.`field_name` = 'redcap_updates_available';
```

```
UPDATE `redcap_config` SET `value` = NULL WHERE `redcap_config`.`field_name` = 'redcap_updates_available_last_check';
```

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