

Version 10.5.1 (released on 2020-11-12)

CHANGES IN THIS VERSION:

- **Major bug fix:** If a user is in a classic/non-longitudinal project and selects an instrument after clicking the "Show data collection instruments" link on the left-hand menu, the instrument page displaying the record drop-down lists would mistakenly be only partially displayed due to a fatal PHP error on the page.
- **Bug fix:** On the Configuration Check page, it was mistakenly displaying MySQL database configuration suggestions for the MySQL query cache setting even though the query cache is deprecated in MySQL 8.0. It will now no longer suggest changes to the query cache if using MySQL 8.0. (Ticket #95873)

Version 10.5.0 (released on 2020-11-12)

CHANGES IN THIS VERSION:

- **New action tag: @PREFILL** - Sets a field's value to static text or dynamic/piped text whenever a data entry form or survey page is loaded, in which it will always overwrite an existing value of the field. The format must follow the pattern @PREFILL="????", in which the desired value should be inside single or double quotes. A field with @PREFILL will always be read-only, thus its value cannot be modified manually on the data entry form or survey page. For text fields, you may pipe and concatenate values from other fields in the project - e.g., @PREFILL='Name: [first_name] [last_name], DOB: [dob]'. For checkbox fields, simply separate multiple checkbox values with commas - e.g., @PREFILL='1,3,[other_field:value]'. NOTE: The piped value does *not* get applied during any data imports (via API or Data Import Tool) but only operates when viewing survey pages and data entry forms. NOTE: A field with @PREFILL will have its value updated **ONLY** when the page loads, which means that its value will not be updated in real-time if you modify other fields on the same page that are piped into the @PREFILL tag. NOTE: If being used on a date or datetime field, the date value inside the quotes must be in Y-M-D format - e.g., @PREFILL='2007-12-25' - regardless of the field's set date format. NOTE: The only difference between @PREFILL and @DEFAULT is that @DEFAULT is only applied when an instrument has no data yet, whereas @PREFILL will always be applied on an instrument, meaning that @PREFILL will **ALWAYS** overwrite the value if a field value already exists. TIP: To pipe the value of one multiple choice field into another multiple choice field, make sure you append ':value' to the variable being piped - e.g., @PREFILL='[my_dropdown:value]'.
- **New special functions:** left(), right(), mid(), length(), find(), trim(), upper(), lower(), and concat(). These nine new functions can be specifically used when dealing with text values and may be especially useful when using them in conjunction with the @CALCTEXT action tag. To learn more and to see some practical examples of their usage, click the blue 'Special Functions' button in the Online Designer in any project.

- **left** (*text, number of characters*) - Returns the leftmost characters from a text value. For example, left([last_name], 3) would return 'Tay' if the value of [last_name] is 'Taylor'.
- **right** (*text, number of characters*) - Returns the rightmost characters from a text value. For example, right([last_name], 4) would return 'ylor' if the value of [last_name] is 'Taylor'.
- **length** (*text*) - Returns the number of characters in a text string. For example, length([last_name]) would return '6' if the value of [last_name] is 'Taylor'.
- **find** (*needle, haystack*) - Finds one text value within another. Is case insensitive. The "needle" may be one or more characters long. For example, find('y', [last_name]) would return '3' if the value of [last_name] is 'Taylor'. The value '0' will be returned if "needle" is not found within "haystack".
- **mid** (*text, start position, number of characters*) - Returns a specific number of characters from a text string starting at the position you specify. The second parameter denotes the starting position, in which the beginning of the text value would be '1'. The third parameter represents how many characters to return. For example, mid([last_name], 2, 3) would return 'AYL' if the value of [last_name] is 'TAYLOR'.
- **concat** (*text, text, ...*) - Combines/concatenates the text from multiple text strings into a single text value. For example, concat([first_name], ' ', [last_name]) would return something like 'Rob Taylor'. Each item inside the function must be separated by commas. Each item might be static text (wrapped in single quotes or double quotes), a field variable, or a Smart Variable.
- **upper** (*text*) - Converts text to uppercase. For example, upper('John Doe') will return 'JOHN DOE'.
- **lower** (*text*) - Converts text to lowercase. For example, lower('John Doe') will return 'john doe'.
- **trim** (*text*) - Removes any spaces from both the beginning and end of a text value. For example, trim(' Sentence with spaces on end. ') will return 'Sentence with spaces on end.'.
- **Improvement:** The Configuration Check page will now provide MySQL/MariaDB database configuration recommendations to improve database performance and stability. REDCap will check and compare various MySQL/MariaDB configuration settings to identify any settings that are not set correctly or should be changed. Most of the suggestions are based on the same recommendations from a popular open-source product named MySQL Tuner. If no recommendations have been identified, the Configuration Check page will display a green checkmark icon with a short message saying that the configuration settings appear sufficient for optimal performance and stability.
- Bug fix: One Laboratory field and its associated LOINC code was not originally included on the field mapping page for Clinical Data Pull and Clinical Data Mart.
- Bug fix: Certain third-party PHP packages used in REDCap were mistakenly not compatible with PHP versions lower than PHP 7.2.5, and this would prevent some REDCap installations from upgrading to a recent release.
- Bug fix: When using Missing Data Codes in a project that has a drop-down field or a radio button field with a @NOMISSING action tag, in which one of the choice codings of the drop-down/radio is exactly the same as a Missing Data Code, if the field's value was set to a choice that corresponds to a Missing Data Code, after saving the data entry form and then returning to

it later, the field would mistakenly be disabled on the page, thus preventing anyone from changing its value. In this scenario, the field should not be disabled if the @NOMISSING action tag is being used. (Ticket #95510)

- Bug fix: When an admin is using the "View Project as User" feature in a project, it might mistakenly display the "External Modules" link on the left-hand menu, even though the user being impersonated would never actually see that link displayed. (Ticket #95371)
- Bug fix: When exporting a PDF of saved data, if the PDF contains a survey response in which a Participant Identifier value had been entered into the Participant List for that participant, the PDF would mistakenly always display the Participant Identifier at the top right corner of the PDF. If a user that has De-Identified export privileges or Remove Identifier export privileges is exporting the PDF, or if a survey participant is exporting the PDF of their own responses, it should not display the Participant Identifier inside the PDF. (Ticket #95435)
- Bug fix: When importing certain PROMIS instruments or batteries from the REDCap Shared Library in which the instrument contains a T-Score and Standard Error field, if the PROMIS instrument is viewed as a data entry form in the REDCap interface, it might mistakenly display a branching logic error on the page. In these cases, the bug cannot be fixed except by deleting the instrument from the project (beware: this might delete or orphan any already-collected survey responses for the PROMIS instrument) and then by re-downloading it from the Shared Library. Bug emerged in REDCap 9.10.0 Standard and 9.5.28 LTS. NOTE: This would not impact the display of the PROMIS instrument when being taken as a survey by a participant.
- Bug fix: When assigning records to Data Access Groups via data import, in certain scenarios the records being imported would get assigned to DAGs properly but the Record List Cache would mistakenly not get updated during the import process, thus causing specific pages (e.g., reports, Record Status Dashboard) not to display those records when filtering by their DAG. If this issue occurred, the only thing that would fix it would be for an admin to know to click the "Clear the Record List Cache" button in the project. (Ticket #95133)
- Change: Added the project PID to the prepopulated email subject field when clicking the blue "Contact REDCap administrator" button on a project's left-hand menu.
- Change: When uploading a file to the File Repository and when uploading an attachment to an alert, it now specifies the max file upload size in each location.
- Bug fix: The User Access Dashboard's drop-down list filter of project statuses mistakenly included "Archived" projects, which is a mistake since "Archived" is no longer a valid option for a project status as of REDCap 9.8.0.

Version 10.4.1 (released on 2020-11-06)

CHANGES IN THIS VERSION:

- Bug fix: If a checkbox field whose variable name matches a PHP function (including REDCap-defined PHP functions) is used in conditional logic, report filter logic, branching logic, calculations, etc., it would not get parsed correctly, and the logic/calculation would mistakenly be considered syntactically invalid.

- Bug fix: When viewing the project Logging page, any "Sent Alert" logged events that pertain to records would mistakenly not be displayed. Bug fix: When importing data via the Data Import Tool for a Text Field with min/max range validation, if the value being imported is out of range, it would correctly display it inside an orange box but would mistakenly fail to list the existing value in red below the new value if the field already contained an existing value. on the page when filtering by record name. (Ticket #95222)
- Bug fix: When an administrator is approving Draft Mode changes for a production project in the To-Do List, the dialog popup on the page would mistakenly not close itself after an action was taken on that To-Do List item. (Ticket #95292)
- Bug fix: When using certain Smart Variables inside @CALCDATE or @CALCTEXT, it might mistakenly cause a calculation error to occur on the data entry form or survey page.
- Bug fix: When using the @DEFAULT action tag on an instrument that is not the first instrument, if the record has the record name "0" and is an existing record, the action tag would fail to work successfully. (Ticket #95296)
- Bug fix: If an administrator sends a General Notification to users in REDCap Messenger, it might mistakenly send an email notification multiple times to each user when instead it should only send a single email notification (if the user's permissions dictate that they receive email notifications). Bug emerged in REDCap 10.4.0.
- Change: On the Data Quality page, the text boxes used for adding/editing custom data quality rules were enlarged and are now resizable.

Version 10.4.0 (released on 2020-10-30)

CHANGES IN THIS VERSION:

- **New action tag: @CALCDATE** - Performs a date calculation by adding or subtracting a specified amount of time from a specified date or datetime field and then provides the result as a date or datetime value - e.g., @CALCDATE([visit_date], 7, 'd'). The first parameter inside the @CALCDATE() function should be a text field with date, datetime, or datetime_seconds validation, in which you may specify (if needed) the event and repeating instance - e.g., @CALCDATE([baseline_event][visit_date], 7, 'd'). The second parameter represents the offset number amount that should be added or subtracted. It can be a decimal number or integer. Tip: To subtract (i.e., go backwards in time), use a negative number. The third parameter represents the units of the offset amount, which will be represented by the following options: 'y' (years, 1 year = 365.2425 days), 'M' (months, 1 month = 30.44 days), 'd' (days), 'h' (hours), 'm' (minutes), 's' (seconds). The unit option must be wrapped in quotes or apostrophes. NOTE: Both the source field and the result field must be a text field with date, datetime, or datetime_seconds validation. It is important to realize that a field with @CALCDATE will not be editable on the survey page or data entry form, and the field will function almost exactly like a normal calculated field, in which its value may get updated via a data import, when running Data Quality rule H, or in real-time during normal data entry on a form or survey.
- **New action tag: @CALCTEXT** - Evaluates logic that is provided inside a @CALCTEXT() function and outputs the result as text, typically performed with an if(x,y,z) function - e.g.,

@CALCTEXT(if([gender]='1', 'male', 'female')). NOTE: It is important to realize that a field with @CALCTEXT will not be editable on the survey page or data entry form, and the field will function almost exactly like a normal calculated field, in which its value may get updated via a data import, when running Data Quality rule H, or in real-time during normal data entry on a form or survey. If desired, it is possible to return the value as a number - e.g., @CALCTEXT(if([age] >= 18, 'adult', 5*[other_field])).

- **New feature: Data Access Group import/export and DAG-User assignment import/export** - The Data Access Groups page in a project now displays a drop-down list of options for users to import/export Data Access Groups, which allows users to bulk create or rename DAGs via a CSV file. It also allows for the import/export of DAG-user assignments via CSV file to bulk assign/reassign/unassign users from DAGs in a project. Note: The DAG-user assignment import affects only a user's *current* DAG assignment; thus, it has no effect on the DAG Switcher assignments for the user.
- **New feature: Data Quality Rule import/export** - The Data Quality page in a project now displays a drop-down list of options for users to import/export custom Data Quality rules via a CSV file. Note: This does not apply to the pre-defined DQ rules (rules A-I). Also, when DQ rules are imported, the process is additive only, meaning that the CSV upload cannot replace or edit existing DQ rules but will only add new ones to the project.
- **Improvement:** On a user's My Profile page, there is a new setting under "Notification Preferences for REDCap Messenger" to enable/disable email notifications specifically for General Notifications and System Notifications. This setting will be enabled by default for all users. This is intended to help users who ignore messages from Messenger to become more informed about messages sent from administrators (via General Notifications) and to become more aware of new features (via System Notifications). Note: Users with this option enabled will not receive an email notification for General/System Notifications if they have not logged into REDCap in the past 6 months. Also, if you wish to automatically disable this setting for all users, simply run the following SQL immediately after the upgrade has completed: update redcap_user_information set messaging_email_general_system = 0;
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags with JavaScript event attributes in a very specific way into text that ultimately gets displayed on a webpage (e.g., via a message in REDCap Messenger, via field labels on a survey or data entry form).
- Bug fix: If a checkbox field whose variable name ends with "round" is used in conditional logic, report filter logic, branching logic, calculations, etc., it would not get parsed correctly and would mistakenly be considered syntactically invalid. (Ticket #94109)
- Bug fix: The "redcap_survey_complete" hook was mistakenly being called at incorrect/additional times on a survey when it should only be called when the survey had just been completed. (Ticket #93703)
- Bug fix: In specific situations where both Field Embedding and branching logic are used together on a multi-page survey, in which fields on one page have branching logic referencing fields from previous pages, it might mistakenly display a branching logic error prompt on the page. (Ticket #94536)

- Bug fix: The "View Project as User" feature was not behaving accurately on the "Designate Instruments for My Events" page in longitudinal projects. (Ticket #79227)
- Bug fix: When exporting data to SAS, the "format" of a multiple choice field might not get represented correctly in the SAS syntax file, thus causing errors to occur when loading the data into SAS for certain types of REDCap projects and for certain SAS clients/versions.
- Bug fix: In the API Playground, the example Ruby output was slightly incorrect due to a variable naming issue and would throw an error if someone attempted to run it. (Ticket #94486)
- Bug fix: When utilizing Missing Data Codes in a project and performing a data export to a stats package (R, Stata, SAS, SPSS), in which the export contains a checkbox field that has a @NOMISSING action tag, the resulting syntax file for the stats package would mistakenly include the Missing Data Code options for the checkbox even though the CSV file would correctly omit them. This would cause an issue when loading the exported data into the stats package. (Ticket #94334)
- Bug fix: If a user contains an apostrophe in their username (because LDAP allows this), the username search functionality and some buttons might not work on the Browse Users and Browse Projects pages in the Control Center. (Ticket #79647)
- Bug fix: REDCap might mistakenly fail to correctly parse logic (conditional logic, branching logic, calculations) in certain contexts if the logic contains Smart Variables that have parameters appended to them after a colon, such as [form-link:instrument]. (Ticket #93955)
- Bug fix: The R code that gets auto-generated by the API Playground was out of date and was no longer valid.
- Bug fix: In a project that has a project-level or survey-level designated email field, in which the project is longitudinal or has repeating events or instruments, if a designated email field is being updated via a data import for a given event or repeating instance, it would mistakenly fail to additionally update that email field in all events/instances that contain data for the given record being imported. This could cause records to end up with differing values of the email field on different events/instances, which should never happen. (Ticket #94408)
- Bug fix: When running Data Quality rule B, it might mistakenly not return discrepancies that exist on repeating instruments or repeating events. (Ticket #94979)
- Bug fix: When running Data Quality rule F, it might mistakenly return false positives for fields that exist on repeating events. (Ticket #94985)
- Bug fix: When using the "Move multiple fields" functionality on the Online Designer, it would correctly move them all to the right position, but they would mistakenly be in reverse order.
- Bug fix: When uploading a new Instrument Zip file via the Online Designer, if a field in the Instrument Zip file contains branching logic or a calculation that references a checkbox field, it might mistakenly not auto-fix the branching logic/calculation correctly if the checkbox field's variable name already exists in the project and is thus renamed on the fly. This would cause branching logic or calculation errors to be displayed on the new instrument when viewing on a data entry form or survey. (Ticket #95101)

Version 10.3.8 (released on 2020-10-23)

CHANGES IN THIS VERSION:

- **Medium security fix:** If a malicious user has knowledge of REDCap's infrastructure and code, they might be able to inject specific PHP code into conditional logic or calculations that get evaluated by PHP. Note: This same security fix from a recent release was not fully remediated in that previous version.
- **Minor security fix:** A Cross-Site Request Forgery (CSRF) vulnerability was discovered where a malicious user (who must be logged in) could potentially exploit it by adding some specific parameters to POST requests in the application.
- **Minor security fixes:** Various Cross-site Scripting and SQL Injection vulnerabilities were discovered where a malicious user (who must be logged in) could potentially exploit them by adding some specific parameters and values to GET and/or POST requests in the application.
- **Minor security fix:** If a malicious user has knowledge of REDCap's infrastructure and code, they might be able to pass possibly dangerous values into input parameters that eventually pass through PHP's unserialize() function, which could possibly be used for remote code execution. The usage of unserialize() has been modified to protect against dangerous values passed to it.
- **Improvement:** When using the Clinical Data Mart feature in a project, it now contains a new setting (for Admins only) on the Project Settings page that will turn off the daily data fetch cron job at a specified date. In addition, a record-level version of this Data Mart cron job "kill switch" has been added as a new field on the "Project Settings" instrument in the Data Mart project that will stop running the daily cron job for specific records based on the date values (i.e., a beginning and end date) entered into fields for a given record. Note: If an existing Data Mart project already exists, you can add the variables fetch_date_start and fetch_date_end to the Project Settings instrument to utilize the record-level setting to only fetch data within a specified time period for a given record.
- **Change:** Regarding a code change in v10.3.5 (Standard) that allowed PHP warnings (but not PHP errors) to be displayed on REDCap pages for development servers (and also for any servers where hooks or external modules were incidentally enabling the PHP error reporting on the server), this has been reverted so that PHP warnings will no longer be displayed anymore on any REDCap server except for the REDCap development team.
- **Bug fix:** When a data entry form is being viewed for a record that has not been created yet, it was mistakenly displaying the "H" icon to view the Data History popup, which is nonsensical if the record does not exist yet. It no longer displays the "H" icon on the page until the record has been created. (Ticket #94427)
- **Bug fix:** If a checkbox is being piped somewhere else on the same page as where the checkbox field itself exists, it might mistakenly not update in real time when the checkbox is checked or unchecked. However, it would pipe correctly whenever the page is loaded.
- **Bug fix:** If the Clinical Data Mart feature is enabled at the system level but the Clinical Data Pull is disabled at the system level, then the user-level option to grant a user Data Mart privileges would mistakenly not be displayed on the Browser Users page in the Control Center.
- **Bug fix:** When a matrix of checkboxes are embedded individually inside another field on the same page, any change to those embedded checkboxes (either checked or unchecked) would mistakenly not take effect and thus its value would not get saved appropriately. (Ticket #94519)

- Bug fix: When using the "project_id" field for the “Custom Surveys for Project Status Changes” feature, specifically for the project creation process when users must request that admins create their projects on their behalf, the PID value of the new project would mistakenly not get stored in the project that contains the embedded survey and is used to capture project creation details. (Ticket #90873)
- Bug fix: When using the PDF Auto-Archiver option for a survey, if the survey response is completed and then is later deleted via the Delete button on the data entry form, if that survey is taken again for that same record, then it would mistakenly not save a new PDF in the File Repository for the new response but would only retain the original one.

Version 10.3.7 (released on 2020-10-13)

CHANGES IN THIS VERSION:

- **Critical security fix:** If a malicious user has knowledge of REDCap's infrastructure and code, they could potentially manipulate the URL of certain project-level pages in REDCap and bypass authentication to view those pages without ever having logged in. Note: There is no known report of this vulnerability ever having been exploited in the wild on any REDCap installation. Given that this vulnerability is present in all versions of REDCap beginning with 9.1.16 (LTS) and 9.3.7 (Standard), and given the fact that a previously patched vulnerability affects all versions beginning with REDCap 6.18.0, it is recommended that anyone on REDCap 6.18.0 or higher should immediately upgrade to this version: 10.3.7 (Standard), 10.0.23 (LTS), or 9.5.36 (LTS).
- Bug fix: When evaluating logic for large amounts of records, such as with the "datediff" cron jobs for both Alerts and ASIs, REDCap was making an inordinate amount of calls to the database and was also performing too much logic processing unnecessarily. These unnecessary processes have been removed, which should improve general performance of logic parsing/processing in REDCap. (Ticket #93787)
- Various fixes for PHP warnings that only get displayed in non-production installations.

Version 10.3.6 (released on 2020-10-09)

CHANGES IN THIS VERSION:

- Improvement: The filename of a file uploaded to a File Upload field will now be displayed in a downloaded PDF with saved data and also in the download button for File Upload fields displayed in reports. The filename will also be displayed as the value of a File Upload field in a data export (excluding CDISC ODM exports, including API exports).
- Bug fix: If an SQL field is used in a Custom Record Label, it would mistakenly run that same SQL query for every record being displayed on the Add/Edit Records page and Record Status Dashboard, which could cause performance degradation to the REDCap server for larger projects.
- Bug fix: If a Notes field has text data that contains tab characters, those tab characters would mistakenly be represented in an exported PDF as square box characters.

- Bug fix: When exporting an instrument as a PDF with data, if a given page in the PDF ends with a Signature field displayed at the bottom (but not necessarily being the last field on the instrument or survey), it might get confused about inserting a page break directly after the signature, thus causing the next page to be overwritten on top of the first. This would typically make the two pages unreadable.
- Bug fix: If a calculated field's equation begins with the function "log", "min", or "max", then the PHP-side processing of the calculations (via Data Import or Data Quality rule H) would cause the calculation to not return the correct result if one or more fields used in the equation contained a blank value. (Ticket #93169)
- Bug fix: When upgrading REDCap to v9.6.0 or higher from a lower version, an SQL error might occur for the redcap_mobile_app_log table when running the SQL upgrade script. (Ticket #92240)
- Bug fix: When a survey that has the e-Consent Framework enabled also has the option enabled to prevent users from editing e-Consent responses, if a user is on the data entry form at the same time that a respondent is consenting that instrument as a survey, then the user could mistakenly overwrite the respondent's survey results and nullify their consent if the user submits the page after the respondent does. Now in this scenario, if the respondent has already consented and the user attempts to save the data entry form, it will not save the data the user submitted and will instead display an error that explains why their data cannot be saved. (Ticket #92297)
- Bug fix: When viewing the survey login screen for a survey on certain devices (e.g., Safari on iOS), the browser would mistakenly suggest to the participant that they should use the fields as if they are creating a new password, which is incorrect and confusing. (Ticket #93095)
- Bug fix: When running a custom Data Quality rule that contains checkbox fields, the resulting display of discrepancies might mistakenly not display the checkbox fields but would display all other field types.
- Bug fix: When using logic for report filters, ASIs, DQ rules, etc., in which the logic has an [X-event-name] Smart Variable that is prepended to a checkbox field, it might mistakenly not parse and process the logic correctly, thus possibly returning incorrect results. (Ticket #93534)
- Bug fix: When using the Survey Queue in which a survey in the queue has been completed and is either 1) a repeating survey, or 2) a survey that allows the respondent to return and modify completed responses, the rows in the Survey Queue for such surveys might get hidden and thus can only be seen when clicking the "view all" link. This could prevent some respondents from finding these hidden surveys in the queue if the respondent needs to add another response for the repeating survey or to modify the completed, editable survey.
- Change: When editing a field in the Online Designer, if the field's variable name is longer than 26 characters, the page no longer gives the warning popup about this when clicking the Save button in the Edit Field dialog but only at the point when the variable name is actually changed. This new behavior should be a lot less annoying to users with very long variable names.
- Bug fix: When a checkbox field is a required field and is embedded inside another field that has an @HIDDEN action tag (including @HIDDEN-SURVEY or @HIDDEN-FORM), if the checkbox had some checkboxes checked (after being saved previously) and then a user saved the

form/survey, it would mistakenly uncheck all the checked checkboxes for that hidden, embedded checkbox field. (Ticket #93766)

- **Change:** Some warning text was added to the Edit Alert dialog on the Alerts & Notifications page in the event that the user selects the third radio option for Step 1A while selecting the "every instance of a repeating instrument" option in Step 1C, which can cause the alert to be triggered off of every new repeating instance that is added to *any* repeating instrument in the project. Such behavior is often not intended, and could mistakenly cause many unintended alerts to be sent. New warning text: "WARNING: It is generally not recommended to use 'Using conditional logic...' in Step 1A together with the option '...on every instance of a repeating instrument' in Step 1C. If these are used together, that means that this alert will be trigger by EVERY repeating instance that is saved for ANY repeating instrument in the project."

Version 10.3.5 (released on 2020-10-02)

CHANGES IN THIS VERSION:

- **Security improvement:** The concept of "public projects" have been removed and thus the My Projects page will no longer display the list of public projects at the bottom of the page. This means that the first 13 projects in a fresh installation of REDCap (and subsequently any projects having "Public/None" authentication) will no longer be accessible via the "site_admin" user anymore. They will no longer be accessible to the public web. This feature has been removed to reduce the overall attack surface area in REDCap to protect against potential malicious users who would like to use these public projects as a testing ground. In general, public projects have not really been utilized very much in recent years, so removing this functionality would not seem to adversely affect many (if any) REDCap institutions.
- **Security improvement:** The OpenID authentication method has been permanently removed from REDCap. This authentication method only supported OpenID version 1, which is very outdated, and the current third-party PHP package being used for OpenID authentication has some potential security issues.
- **Medium security fix:** If a malicious user has knowledge of REDCap's infrastructure and code, they might be able to read certain files from the web server's filesystem by manipulating the URL for a file uploaded as a rich text file in an External Module's configuration.
- **Medium security fix:** If a malicious user has knowledge of REDCap's infrastructure and code, they might be able to inject specific PHP code into conditional logic or calculations that get evaluated by PHP. Note: This same security fix in last week's release was not fully remediated in that version.
- **Minor security fix:** A Blind SQL Injection vulnerability and a Cross-Site Scripting vulnerability were found on the To-Do List page, in which a malicious user could potentially exploit it by manipulating the query string of an HTTP request on that page.
- **Major bug fix:** When two users are about to create a new record with the same record name on a data entry form, in which they both upload a file to a File Upload or Signature field on that form prior to pressing the Save button, the last file uploaded might mistakenly get attached to

the first record and possibly also to the second record at the same time, thus orphaning the file originally uploaded to the first record. Note: This bug does not exist on surveys. (Ticket #89678)

- **Major bug fix:** When using Twilio to send voice calls for Alerts & Notifications, the message of the voice call would mistakenly be blank, in which it would simply hang up after being picked up by the recipient. (Ticket #93384)
- **Improvement:** The Clinical Data Pull and Data Mart features can now import the date/time of death of a patient (if deceased) as a mappable field.
- **Change/improvement:** The Clinical Data Pull and Data Mart features can now import extra email fields (in addition to the primary email) for a patient using the new mapping fields “email_2” and “email_3” on the field mapping page. In previous versions, multiple email addresses might have been imported into the email field as semicolon-delimited text, but now they can be separated and imported as separate fields. Note: If any existing Data Mart projects already exist, the fields “email_2” and “email_3” must be added to the Data Mart project in order for the extra email addresses to be imported into any record.
- **Bug fix:** If a field is embedded inside the choice label of a multiple choice field that is used in the Custom Record Label, it would mistakenly not embed the field correctly on the page at all. Bug emerged in the previous release. (Ticket #92551B)
- **Bug fix:** Four 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:** If randomizing a record while the randomization field and/or a strata field on the page are radio button fields (as opposed to being drop-down fields), after the record has been randomized, those fields would mistakenly not appear to be selected until the page is reloaded or revisited later. This would not affect the data values of the fields at all but could be confusing to users because it seemingly implies that perhaps the randomization process was not completely successful. (Ticket #92825)
- **Bug fix:** REDCap Messenger would mistakenly not open when on the External Modules page in the Control Center.
- **Bug fix:** When copying a project and selecting the option to copy "All settings for Survey Queue and Automated Survey Invitations", it would mistakenly fail to copy the time lag fields of "before/after" and "the ASI has been triggered/[date or time field]" (if defined) for Automated Survey Invitations. (Ticket #92213)
- **Bug fix:** When a project has some alerts set to send as SMS or Voice Calls, but the Twilio functionality has been completely disabled at the system-level in the Control Center, the REDCap page would mistakenly crash with a fatal PHP error when those alerts get triggered. (Ticket #92179)
- **Change:** When a user submits production changes via Draft Mode in the Online Designer, if the changes are approved automatically, it no longer sends an email to the user themselves. This email was superfluous since the user was already notified of this in the user interface. (Ticket #91415)
- **Bug fix:** When a user copies a project or creates a new project via a Project Template, in which a survey in the original project had enabled the Survey Confirmation Email and had its option "Include PDF of completed survey as attachment" checked, that checkbox option would mistakenly not be saved/checked in the new resulting project. (Ticket #92058)

- Bug fix: The underlying code/logic that determines when PHP warnings in REDCap should be output to the page on development servers was not quite correct, although it does not appear to have had any adverse consequences.
- Bug fix: When the system-level setting "Utilize the Display Name in all outgoing emails?" is turned off, the user interface on the Alerts & Notifications page would still mistakenly display the "Display name" text box in the "Create new alert"/"Edit alert" dialog. (Ticket #92245)
- Bug fix: When creating/editing an Automated Survey Invitation and clicking the "Save & Copy to..." button, it would mistakenly fail to copy the time lag fields of "before/after" and "the ASI has been triggered/[date or time field]" (if defined) for the ASI. (Ticket #92213B)
- Bug fix: When downloading or uploading a CSV file containing the settings for Automated Survey Invitations on the Online Designer, it would mistakenly forget to include the time lag fields of "before/after" and "the ASI has been triggered/[date or time field]" (if defined) for the ASIs in both the import and export files.
- Bug fix: When an alert has been created in a project containing repeating instruments, in which the alert is to be triggered by both conditional logic and when a record is saved on a specific form/survey (i.e., the second radio button in Step 1A), specifically a repeating instrument, then if other repeating instruments exist in the project and contain data while the Trigger Limit value (in Step 1C) is set to "only once per record and also on every instance of a repeating instrument" and then a user clicks the "Re-evaluate Alerts" button on the Alerts & Notifications page, instead of sending/scheduling an alert for just the targeted repeating instrument, it would mistakenly send/schedule an alert for all repeating instruments that contain data for a given record. Note: This only occurs when clicking the "Re-evaluate Alerts" button.
- Bug fix: When an alert has been created in a project containing repeating instruments, in which the alert is to be triggered when a record is saved on a specific form/survey (i.e., either the first or second radio button in Step 1A), if the specified instrument is a repeating instrument and a data import is being performed, in which the imported data contains repeating instances of that repeating instrument, then it would mistakenly trigger the alert. When an alert has either the first or second radio button selected in Step 1A, the alert should never be triggered by a data import (including API import or REDCap::saveData) but only when clicking a Save button on a survey page or data entry form.
- Change: If the MySQL database is somehow in read-only mode, which means that REDCap will not function properly, REDCap will now display the database error message on the page so that an admin will be notified of this issue and fix it. (Ticket #93212)
- Bug fix: If the Data Transfer Services (DTS) are enabled at the system level and the current user has access to a project that has DTS enabled, then a fatal PHP error would be displayed on the My Projects page if on PHP 7.3+. (Ticket #93190)
- Bug fix: When viewing the My Projects page or Home page on a mobile device, the Send-It option would mistakenly not be visible in the pull-down navigation menu (i.e., 3-line button at top right).
- Change/improvement: The External Service check on the Configuration Check page now returns an error if specific HTTP 4XX status codes are returned and also if any HTTP 5XX status codes are returned from a given external service. This will allow the checks to be more accurate for certain web server configurations.

- Bug fix: On the Alerts & Notifications page, the red asterisk in Step 1A of the Edit Alert dialog did not have a corresponding explanation in that section regarding what the asterisk implies. It was mistakenly removed in a previous version, and has now been re-added.
- Change/bug fix: When clicking the "Re-evaluate Alerts" button on the Alerts & Notifications page, it was only re-evaluating alerts that had only conditional logic and thus was not re-evaluating alerts that had the first two options selected in Step 1A of the Edit Alert dialog (i.e., "When a record is saved on a specific form/survey..."). The Re-evaluate Alerts now considers all three options in Step 1A when it is evaluating.
- Bug fix: The datediff+today/now cron job for Alerts & Notifications that runs every 4 hours might mistakenly fail to remove any scheduled/unsent alerts if the alert's conditional logic no longer evaluated as TRUE at the time of the cron job running.
- Bug fix: Signature fields would mistakenly not work (or not work well) or certain non-mobile touchscreen devices because the jSignature library being used was very out of date. (Ticket #67122)

Version 10.3.4 (released on 2020-09-25)

CHANGES IN THIS VERSION:

- **Medium security fix:** If a malicious user has knowledge of REDCap's infrastructure and code, they might be able to inject specific PHP code into conditional logic or calculations that get evaluated by PHP.
- Bug fix: When loading a public survey for a project that contains 10K+ or 100K+ records, the initial loading of the survey page could be unnecessarily slow due to incorrect assumptions in the code regarding the employment of record auto-numbering for public surveys. Thus it should now load much faster.
- Bug fix: When loading a public survey for a project that contains 10K+ or 100K+ records, the initial loading of the survey page could be unnecessarily slow if the project's back-end "record list cache" has not been recently built, which may occur if users have not been active in the project recently even while many participants are taking the public survey very often. This was caused due to incorrect assumptions in the code regarding when to trigger the auto-build process for the "record list cache". Thus it should now load much faster.
- Bug fix: For some REDCap installations, especially those on older PHP versions (7.0 and below), a fatal PHP error might be thrown on the install page or upgrade page, thus preventing someone from installing or upgrading REDCap. Bug emerged in REDCap 10.3.3 (Standard). (Ticket #92141)
- Bug fix: In longitudinal projects that contain repeating instruments, if the "designated email field for sending survey invitations" is used or else the survey-level designated email field is used, then it is possible that the designated email field might mistakenly receive repeating values even when its instrument is not a repeating instrument. In this case, the email field's instrument would mistakenly display a repeating instance status icon (i.e., the stack status icon) on the Record Status Dashboard, but would confusingly prevent the user from navigating inside that instrument for a given record on the dashboard page.

- Bug fix: If clicking the pencil icon for a Signature field on the Codebook page, when it opens the field for editing in the Online Designer, it would mistakenly set it as a File Upload field rather than a Signature field, which would cause the field to be modified and saved incorrectly as a File Upload field if the user clicked the Save button in the dialog without changing the field type. (Ticket #92271)
- Bug fix: In development environments, PHP warnings might mistakenly be displayed on some survey pages. (Ticket #92303)
- Bug fix: If using the SendGrid Email API for sending outgoing emails, if the email subject, email sender, or email recipient is left blank, it would mistakenly crash with a fatal PHP error. This would halt the cron job if this occurred while the cron was running. (Ticket #92266)
- Bug fix: When using Clinical Data Interability Services (CDP or Data Mart), all non-Integer record IDs would mistakenly not get inserted into the redcap_ehr_import_counts database table, which tracks the amount of data points/records that have had clinical data imported into them. (Ticket #92426)
- Bug fix: If an existing Automated Survey Invitation is modified so that the "Ensure logic is still true?" option is checked (when previously it was unchecked), in which it is the only setting that was modified during this save, it would mistakenly not save that option being checked. (Ticket #92372)
- Bug fix: If the survey confirmation email option is enabled for a survey, it would mistakenly include the participant's email address on the project logging page, which is a privacy concern because it makes anonymous survey responses no longer anonymous and also because it is inconsistent with the text listed below the survey's Completion Text that says "Your email address will not be stored". Instead of listing the participant's email on the logging page, it now displays "To: [undisclosed email address]" instead. (Ticket #92210)
- Bug fix: If a field is embedded inside the choice label of a multiple choice field that is used in the Custom Record Label, it would mistakenly attempt to embed the field inside the blue/green row near the top of the data entry form. This would also cause an embedding error to be displayed on the page if the field were embedded elsewhere on that page. (Ticket #92551)

Version 10.3.3 (released on 2020-09-17)

CHANGES IN THIS VERSION:

- **Medium security fix:** Since it has been determined that REDCap versions 10.3.1 Standard Release and lower and 10.0.17 LTS and lower contain security vulnerabilities that are still executable if those version directories continue to remain on the REDCap web server, the Configuration Check page in the Control Center now recommends that you remove those older version directories that contain specific major vulnerabilities that they cannot be exploited by a malicious user.
- **Minor security fix:** To prevent potentially malicious users from harvesting Table-based usernames from REDCap via the Password Recovery page, it now displays a deterministic (but fake) security question if the username entered does not exist in the system. This behavior

makes it impossible for the malicious user to determine if the username entered was a real username or not.

- Bug fix: If a new user is accessing REDCap for the first time while using an external authentication method (i.e., not using Table-based authentication), the page that asks them to enter their name and email address would not get saved and would mistakenly display the "multiple tabs open" error message.
- Bug fix: If using the Twilio telephony feature on the Public Survey Link page of a project to send an SMS message containing a link to the public survey, it would mistakenly omit the survey link in the content of the SMS if the content contains the Smart Variables [survey-url] and [survey-link] with no "instrument" parameter defined inside the square brackets.
- Bug fix: If a data entry form contains a Descriptive field with an embedded audio or video file, it might mistakenly allow two users to access and modify values on that form at the same time, thus allowing them to mistakenly bypass the Simultaneous User Prevention feature. (Ticket #91334)
- Change/improvement: When navigating through pages in the Control Center, it now only places the admin's cursor in the PID Search textbox on the main Control Center page (i.e., "Notifications & Reporting"). On other pages, such as URL Shortener, Browse Users, Browse Projects, and Add Users, it will automatically place the cursor in the first textbox on the page as a convenience. (Ticket #91939)
- Change: The Configuration Check page now recommends that the web server setting "max_input_vars" be set to a value of at least 100000 in the PHP.INI configuration file.
- Bug fix: If a field is embedded inside the choice label of a checkbox field, it might cause issues if the embedded field contains branching logic to hide/show it when its associated checkbox option is clicked. In many cases, clicking the embedded field might cause the parent checkbox to mistakenly uncheck itself, thus making normal data collection in this way impossible.
- Bug fix: If a radio button field is embedded inside the choice label of a checkbox field, the radio field's "reset" link would mistakenly not uncheck a selected radio button.

Version 10.3.2 (released on 2020-09-11)

CHANGES IN THIS VERSION:

- **Critical security fix:** If a malicious user has knowledge of REDCap's infrastructure and code, they could potentially manipulate the URL of certain non-project pages in REDCap (e.g., Control Center pages, non-project External Module pages) to bypass authentication and view those pages without ever having logged in. And in very specific cases, the user might (if they have specialized knowledge of REDCap) be able to submit the page and actually affect system configuration settings. Note: There is no known report of this vulnerability ever having been exploited in the wild on any REDCap installation. This vulnerability is present in all versions of REDCap beginning with REDCap 6.18.0.
 - Manual code fix: If you are unable to upgrade REDCap but are able to modify the REDCap PHP files on your server, open the file /redcap_vX.X.X/Classes/System.php and in the function defineAppConstants(), modify the line `if ($Route->get()) define("PAGE",`

```
$Route->get()); to replace it with if ($Route->get() && strpos(PAGE_FULL,
"/redcap_v{$redcap_version}/index.php") !== false) define("PAGE", $Route-
>get());
```

- **Minor security fixes:** Various minor security vulnerabilities (including SQL injection, Cross-site Request Forgery, and Cross-site Scripting) were found on various pages throughout REDCap and were remediated.
- **Major bug fix:** If a survey participant's email address was added to an initial survey on the Participant List, and then the participant takes the survey using their private survey link, in which they fail to enter a value for a required field on the first page of that survey, it would mistakenly cause their partial survey completion status to be mistakenly orphaned (thus not displaying the partial response status icon but a red/Incomplete status icon) and might cause their email address to disappear from the Participant List. Additionally, it would cause the next record name in the project to be skipped, thus leaving a gap in the list of record names.
- **Change:** If a project has Randomization enabled and is currently in production, REDCap administrators will not be allowed to move the project back to development status as they normally can on the Other Functionality page. This option is disabled in this case to prevent issues occurring with randomization, such as the fact that all values for the randomization field get erased when moving from development to production.
- **Bug fix:** When a participant loads a public survey, if the tentative record name that was generated when the survey loaded somehow matches the record name of an existing record that has been locked via Record-level Locking, it would mistakenly display the erroneous message that the public survey cannot be taken because the record is currently locked, which is not correct.
- **Bug fix:** If a user is running Data Quality rule H to fix calculations that exist on a survey that has been completed via the e-Consent Framework, although it might note that some calc fields' values need to be fixed, clicking the "Fix calcs now" button for DQ rule H would mistakenly not fix them and would not explain why.
- **Bug fix:** Queries would mistakenly get displayed on the page momentarily right after logging in via Shibboleth or Shibboleth+Table. (Ticket #91504)
- **Bug fix:** If a value is being entered into a "Phone (North America)" validated field, and the field's value is formatted slightly after being entered (to add parentheses, spaces, and dashes), any branching logic or calculations triggered by the field would mistakenly use the hand-entered value of the field rather than the final formatted value, which could cause issues in certain scenarios. (Ticket #91722)

Version 10.3.1 (released on 2020-09-03)

CHANGES IN THIS VERSION:

- **Major bug fix:** If running PHP 5.5 or 5.6, it would not be possible to upgrade to a recent version of REDCap because it would throw a fatal PHP error on the upgrade page. (Ticket #91097)
- **Bug fix:** When using Twilio, it would mistakenly not send SMS messages to U.S. phone numbers with an 854 area code. (Ticket #90686)

- Bug fix: If a calc field is using the function sum, min, max, stdev, mean, or abs, and the variable names referenced inside those functions are not numeric-type fields (i.e., has number/integer validation, is a calc or slider field), it would not return a correct result if one of more of the fields referenced in the function had a negative value. (Ticket #90881)
- Bug fix: The language has been made clearer in the popup that is displayed on the User Rights page when selecting the radio option "Locking / Unlocking with E-signature authority". (Ticket #90961)
- Change: When REDCap is routinely deleting temporary files inside its internal "temp" directory, if a file there does not have the expected timestamp inside the file's filename to designate the file's time of creation, then the file's "last modification time" property will then be checked to determine its age to see if it should be deleted. This also includes files in subdirectories within the temp directory.
- Change: Added the REDCap version number to the top of the Configuration Check page for those institutions that wish to print the page for version-specific documentation.
- Bug fix: When adding choices that do not contain a comma for a multiple choice field in the Add New Field dialog on the Online Designer, it would not always automatically set the raw coded values correctly if the user provided a mix of numeric and non-numeric values for the options. (Ticket #83895)
- Bug fix: If the e-Consent Framework is enabled on a one-page survey that contains a field that is required and is also embedded inside another field on the survey page, if the participant loads the e-Consent certification page and then clicks the "Previous Page" button, it would mistakenly delete the value of the field that was both required and embedded on the previous page. (Ticket #91139)
- Change: The option to enable a twice-daily cron job (available to admins only) to automatically run the Clinical Data Mart in a project has now been changed to run only once per day due to various technical and scalability considerations.
- Bug fix: The External Modules link on the left-hand menu both in projects and in the Control Center would mistakenly be a full link rather than a relative link to the page, which could cause some issues in specific situations. (Ticket #91223)
- Bug fix: When entering a value into a field that has been designated as the Secondary Unique Field in a project, each time the user/participant leaves the field and then re-enters the field, it will cause the amount of SUF unique value checks performed to double each time (e.g., 1 check, then 2, 4, 8), when it should only be running once after entering a value in the field. This could cause the page to get really slow and unresponsive. (Ticket #91344)
- Bug fix: When using Shibboleth or Shibboleth+Table for authentication, it might mistakenly not update a user's "Time of last login" as noted on the Browse Users page. (Ticket #85105)

Version 10.3.0 (released on 2020-08-27)

CHANGES IN THIS VERSION:

- **Critical bug fix:** When collecting data using a public survey where multiple participants are entering data near-simultaneously, if piping is being performed on the first page of the public

survey, a scenario may arise in which a survey participant may mistakenly see some piped data that was entered by another participant that had just saved their responses at the same time as (or moments before) the current participant had loaded the survey page. While this issue is fairly rare, the worst-case scenario could be that a participant ends up viewing another participant's response, thus possibly resulting in a privacy leak if private and/or identifying information (e.g., PHI) has been entered on the survey.

- **New feature:** Added "Language of text to be spoken" for the "Text-To-Speech" survey functionality, which is available on the Survey Settings page. For several years, REDCap has had a Text-to-Speech feature for surveys that, when enabled, allows questions and other text on survey pages to be converted into natural-sounding audio for the participant to hear. Up until now, it supported English only, but now REDCap users may utilize the Text-to-Speech feature in a variety of non-English languages and voices, assuming that the survey text is in a non-English language. This includes Arabic, Brazilian Portuguese, English (UK and US), French, German, Italian, Japanese, and Spanish (Castilian, Latin American, and North American).
- **New feature:** Users may re-evaluate some or all Automated Survey Invitations for all records in a project. If an ASI has been modified after data has already been entered in the project, users may click the "Re-evaluate Auto Invitations" button in the Online Designer, which will re-evaluate selected ASIs for all records to ensure that invitations get properly sent or scheduled based on the new conditions of the ASI (otherwise they could only be triggered if each individual record had data modified). If a user modifies the conditional logic of an ASI, it will recommend that they utilize the "Re-evaluate Auto Invitations" functionality. If an ASI has the "Ensure logic is still true..." option checked, then it is possible during this process that some already-scheduled invitations might get removed (and thus would no longer be scheduled) based on the new conditions.
- **New feature:** Users may re-evaluate some or all Alerts & Notifications for all records in a project. If an alert has been modified after data has already been entered in the project, users may click the "Re-evaluate Alerts" button on the Alerts & Notifications page, which will re-evaluate selected alerts for all records to ensure that notifications get properly sent or scheduled based on the new conditions of the alert (otherwise they could only be triggered if each individual record had data modified). If a user modifies the conditional logic of an alert, it will recommend that they utilize the "Re-evaluate Alerts" functionality. If an alert has the "Ensure logic is still true..." option checked, then it is possible during this process that some already-scheduled notifications might get removed (and thus would no longer be scheduled) based on the new conditions.
- **Improvement:** When deleting an invitation from the Survey Invitation Log (either as a single invitation or using the multi-select option to delete many invitations at once), it now provides a new option in the dialog prompt to "Permanently cancel this invitation?", in which the phrase "permanently cancel" implies that the invitation cannot be re-triggered/scheduled again in the future even if the ASI conditions are met again. If the user chooses to uncheck the option, then the scheduled invitation will be removed, but could possibly get re-triggered in the future if the ASI conditions are met again (assuming it was originally scheduled via an ASI).
- **Improvement:** The Survey Invitation Log has a new filter drop-down option to view "only deleted invitations" (i.e., permanently cancelled invitations).

- **New developer method: REDCap::reserveNewRecordID()** - A thread-safe way to reserve a new record ID in a project prior to creating the record by using record auto-numbering or by manually providing a new record name to reserve as the \$recordIdToReserve parameter. NOTE: This method will not create the record but will merely reserve the record ID so that it will not be used by any other processes in REDCap when creating a record in the near future. Once the record ID is reserved, it will remain reserved for up to 72 hours. When using this method, the assumption is that after reserving a new record ID, you should create a new record with that record name shortly thereafter.
- **Improvement:** Import Records API method has a new parameter “csvDelimiter” to specify the delimiter character when sending data in CSV format. Options include: comma ',' (default), 'tab', semi-colon ';', pipe '|', or caret '^'.
- **Improvement:** Large performance improvement when importing lots of records (via Data Import Tool, Mobile App, API, or REDCap::saveData) when record auto-numbering is enabled in a project and the import process is forcing the new records to be auto-numbered on the fly. (Ticket #90747)
- **Improvement:** Smart Variables and regular field variables can now be piped into the URL of Project Bookmarks. Note: While many Smart Variables can be piped successfully outside of a record context (e.g., [redcap-base-url]), all field variables (e.g., [age], [dob]) and some Smart Variables (e.g., [record-name], [previous-event-name]) can only be piped into the URL while the user is inside a record context, such as viewing the Record Home Page or data entry form. (Ticket #75783)
- **Improvement:** When using the “Custom Surveys for Project Status Transitions” feature (as seen near the top of the User Settings page in the Control Center), administrators may now create a new field having the variable name “project_id” in any of the custom survey projects, in which it will automatically save the PID value (Project ID) of the project for which the user is completing the survey. This will allow the survey responses for these custom surveys to be easily identifiable with the project for which each corresponds. Note: This will make project tracking much easier for these. Regarding the “project_id” field being added, if the custom survey project is longitudinal, the field must exist in the first event of the first arm in the project.
- **Improvement/change:** When using the “Custom Surveys for Project Status Transitions” feature, the embedded "Create Project" survey is now utilized when a user is copying a project. In previous versions, the survey was only displayed with creating new projects on the Create New Project page. (Ticket #90911)
- **Change:** When a user is using the E-signature feature at the bottom of a data entry form, the database query to determine the user's last login time was not optimized and might be very slow in certain circumstances.
- **Change:** Slight re-organization of buttons at the top of the instrument list on the Online Designer.
- **Bug fix:** If a longitudinal project is utilizing the randomization module and is randomizing by group/site by using Data Access Groups in Step B, then it would mistakenly display an erroneous message about erasing the randomization model because the event designation is missing for the randomization field or criteria fields.

Version 10.2.3 (released on 2020-08-21)

CHANGES IN THIS VERSION:

- **Improvement:** When importing a CSV file of data on the Data Import Tool or when importing a CSV Data Dictionary, users may now specify the delimiter of the CSV file as a Comma (default), Tab, or Semicolon.
- **Improvement:** In previous versions, the DAG Switcher would not be very performant if there existed very many users and/or Data Access Groups within a project, thus the DAG Switcher would (by design) be automatically disabled for projects in those situations, which was not ideal with regard to user experience. The DAG Switcher is now no longer limited in that way and will now function fully regardless of there being many users and DAGs in a given project.
- **Major bug fix:** When exporting a report in ODM XML format or exporting an entire project as ODM XML Metadata & Data, and there exist 30 or more records in the project (or 30+ rows of data as seen in a report), it would mistakenly fail and erroneously display the "We are sorry, but apparently the data export is not able to complete successfully..." error message. Bug emerged in REDCap 10.2.1. (Ticket #90241)
- Bug fix: When using an AWS-hosted REDCap installation that was deployed using the AWS Quickstart process, the REDCap Easy Upgrade process would not work successfully if Amazon Linux 2 had been used as the server operating system for the AWS deployment. This fix makes the REDCap Easy Upgrade process work with both Amazon Linux 1 and 2.
- Bug fix: If a longitudinal project contains repeating events, in which a record has multiple repeating instances saved for a repeating event but the first instance of the repeating event was deleted, the Record Home Page would mistakenly still display a column for the first instance even though it has no data. It should not be displaying that column at all if it has no data.
- Bug fix: When viewing a report containing multiple pages, the search feature for the report would mistakenly not display except on the first page. Bug emerged in REDCap 10.2.1. (Ticket #90262)
- Bug fix: When upgrading to REDCap 10.0.0, the encoding/collation of a column in one database table might not get set correctly depending on the default collation setting of the REDCap installation. (Ticket #90343)
- Bug fix: Small aesthetic issues with the width of contents inside the DIV color classes (e.g., red, blue, green).
- Bug fix: If a survey page or data entry form has several Signature fields (i.e., Signature field type), if a user downloads a PDF of that instrument/survey, the PDF file might mistakenly cause the signatures not to be placed correctly inside the PDF, and in some more extreme cases might cause some of the signatures not to display at all depending on their placement relative to the end of the page in the PDF. (Ticket #90310)
- Change: Due to the amount of users complaining about the fact that SAS exports will truncate long field labels and long multiple choice option labels, this behavior has been changed so that those will no longer be truncated in the SAS syntax file for SAS data exports. Note: This behavior to truncate labels in SAS exports was originally changed in REDCap 10.0.3.

- Bug fix: If a field is embedded inside itself, which is not allowed, it would throw a JavaScript error and prevent the survey page or data entry form from loading fully. Instead it now displays a proper error on the page when this occurs. (Ticket #90394)
- Bug fix: When using the Double Data Entry module in a project, if a DDE user attempts to create a new record that has already been created by the other DDE group, it would mistakenly re-number the record name to a new name (as if record auto-numbering were enabled) when saving the record *only if* some fields on the data entry form were required and were left blank. (Ticket #89152)
- Bug fix: The variable "target" was added to the reserved list of illegal variable names because it might cause JavaScript errors to occur on a survey page or data entry form when a field with that variable name is being used in branching logic or a calculation.
- Bug fix: Data Quality rule B might return false positives or might fail to return true discrepancies if a field with no value has certain branching logic. (Ticket #89337)

Version 10.2.2 (released on 2020-08-14)

CHANGES IN THIS VERSION:

- **Major bug fix:** When on a survey page or data entry form, the Secondary Unique Field (if enabled in the project) would mistakenly not be checking for the uniqueness of the field's value when a value was entered/changed for that field on page. Note: This issue did not affect values being imported via Data Import Tool, API, or Mobile App.
- **Major bug fix:** When using the randomization module and utilizing strata fields that exist on a different instrument and/or event from the randomization field, if a user adds or changes a strata field's value during the process of randomization, it mistakenly would not save the new values for the strata fields, thus leaving them with their value prior to when randomization took place. (Ticket #89686)
- Bug fix: In longitudinal projects, the events listed at the top of the table on the Record Status Dashboard were mistakenly not being displayed.
- Bug fix: When using the Smart Variable [survey-link] when the survey title is blank (i.e., has no value entered), it would mistakenly output an invisible hyperlink. In this particular case, it will instead now set the hyperlink label to be the URL of the link itself.
- Bug fix: Seven 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: When moving multiple fields at the same time in the Online Designer when the project is in Draft Module while in production, it might mistakenly throw a fatal PHP error. (Ticket #89734)
- Bug fix: In certain unknown situations when importing large amounts of records at the same time into a project that contains Data Access Groups, in which a user that is not assigned to a DAG is performing the import and is assigning records to DAGs during the import process using the "redcap_data_access_group" field, the back-end Record List Cache might get out of sync and might cause some pages (e.g., Record Status Dashboard) to mistakenly show that the imported records are not assigned to a DAG. This situation would often require a REDCap

administrator to have to clear the Record List Cache via the button on the Other Functionality page in order for the record(s) to display as if assigned to their proper DAG.

- Bug fix: When viewing the Data History dialog of a field in a multi-arm longitudinal project, in which a record exists on multiple arms and then is deleted from one of the arms, it might mistakenly display the history of data values incorrectly in the Data History dialog. (Ticket #67037)
- Bug fix: When using the randomization module while a project is in production status, and then a REDCap administrator moves the project back to development status and then back to production again, the randomization field's values do correctly get erased for all records when moving back to production; however, it mistakenly does not set all the records back to a pre-randomized state. Instead, all the records are still listed as having been randomized, even though they no longer have a value for the randomization field, which results in an error being displayed on the data entry form. (Ticket #89334)
- Bug fix: The "Edit project settings" link next to the tabs on the Project Setup page would mistakenly disappear if the browser window was not very wide or if the user was using the text enlarge/zoom feature in the browser. (Ticket #89772)
- Bug fix: When downloading very large data export CSV files, due to various server configurations, it might mistakenly result in a CSV file that is 0 bytes in size, thus preventing the user from actually downloading the exported data file. (Ticket #89117)
- Bug fix: A foreign key on the "redcap_alerts" database table was not set up correctly.
- Bug fix: While some of REDCap's pages were widened in version 10, the DIV color classes (e.g., red, blue, green) were not, thus causing some pages not to look like they are aligned correctly, especially if using custom banners at the top of the Home Page, login page, or My Projects page. (Ticket #89979)
- Bug fix: When assigning a user to multiple Data Access Groups using the DAG Switcher, if the user's current DAG assignment has not been enabled for them in the DAG Switcher, it would mistakenly allow the DAG Switcher to work but could lead to a confusing user experience because the user would not be able to move themselves back to their original DAG assignment after moving out of it. This has been changed so that an error message is now displayed in this use case and informs the user how to address it.

Version 10.2.1 (released on 2020-08-07)

CHANGES IN THIS VERSION:

- **Major bug fix:** When upgrading REDCap using the Easy Upgrade process, it would mistakenly not execute all the incremental upgrade scripts required during this process, thus resulting in the "YOUR REDCAP DATABASE STRUCTURE IS INCORRECT!" error message that would be displayed in the Control Center immediately after the upgrade. Note: This issue might still occur when upgrading to this version, but it will not occur when you upgrade to another version after this version. (Ticket #89382)

- **Improvement:** The "Response Limit" option on the Survey Settings page now allows for the use of the rich text editor when defining custom text to display to respondents on the survey when limit is reached.
- **Improvement:** The performance of the getAutold() function has been improved, in which it can now determine the next auto-numbered record ID twice as fast (or faster), thus using less database resources during the process for large projects. (Ticket #89389)
- **Change:** For the option "Survey-specific email invitation field" on the Survey Settings page, it adds a note that the survey-specific email field is not required to be set if a project-level email field has already been defined in the project. This was added to reduce confusion for users.
- **Bug fix:** Depending on the type of deployment initially made in AWS via the REDCap AWS Quickstart, REDCap might not always be able to successfully determine if it is currently running on AWS Elastic Beanstalk.
- **Bug fix:** When performing piping of a field with both ":value" and the Smart Variable [X-instance] appended to the field variable (e.g., [field:value][last-instance]), it would sometimes mistakenly not perform the piping at all. (Ticket #59671)
- **Bug fix:** If a longitudinal project is utilizing the randomization module but randomization has not been fully set up yet, the Randomization Setup page would mistakenly display an erroneous message about erasing the randomization model because the event designation is missing for the randomization field or criteria fields.
- **Change:** REDCap no longer suppresses PHP warnings when error_reporting is set to "E_ALL" in PHP by manually changing it in the REDCap code or when the REDCap server has been specifically designated as a "development server" in the Control Center. (Ticket #86767)
- **Bug fix:** The Easy Upgrade feature might mistakenly display two columns for "Standard Release versions" (in which the second one is empty) when notifying an administrator that a new REDCap version is available. It should not display the second, empty column. (Ticket #89356)
- **Bug fix:** Prevent a user's IP address from getting auto-banned if somehow the IP address is a blank/empty string value. (Ticket #89367)
- **Bug fix:** When a report filter references a field from a repeating event or repeating instance, in which the filter logic is checking if the field's value is blank ([field] = "") or non-blank ([field] <> ""), it might mistakenly return too many rows in the report as false positives for the filter logic. (Ticket #89256)
- **Bug fix:** The action tag @HIDECHOICE would fail to function correctly for a matrix of checkbox fields, thus mistakenly displaying all the checkboxes for the field in the matrix when it should instead be hiding some. (Ticket #88810)
- **Change:** When viewing the Participant List page, if the survey has the "survey-specific email invitation field" enabled, it will now display a small notice about this fact near the top of the Participant List table to inform the user and provide more clarity regarding the source of the email addresses being used for that particular survey.
- **Change:** A warning message is now displayed for users that attempt to use both the Survey Queue and Survey Auto-Continue features together in the same project. If one is already enabled while attempting to enable the other, the warning will inform the user that these two features can sometimes conflict with each other.

- Bug fix: If the Secondary Unique Field is enabled in a project and its value is being pre-filled via 1) the @DEFAULT action tag, 2) the GET/query string parameter method for surveys, or 3) the POST parameter method for surveys, it would fail to perform the duplicate value check on the field when the form/survey initially loads, thus mistakenly allowing for duplicate values to be entered. (Ticket #88854)
- Change: When creating a new Table-based user account or editing an existing user account, it would not allow the user's expiration date/time to be set to today's date. In some cases this is desirable, so this has been modified so that it merely gives a warning about this and no longer prevents the form from being submitted in this case. (Ticket #89376)
- Bug fix: When using the "View project as user" feature, the left-hand menu would mistakenly not display only the reports to which the user being impersonated has access to view. (Ticket #82697)
- Bug fix: When using the "View project as user" feature, some parts of the Other Functionality page would mistakenly be displayed to admins that the impersonated user normally would not see. (Ticket #88759)
- Bug fix: If an instrument label is very long with no spaces or hyphens, it might cause the Data Entry Rights table in the Editing Existing User dialog on the User Rights page to spill over and push the radio buttons into incorrect places.
- Bug fix: When sending SMS messages via Twilio for alerts or for survey invitations, if the Smart Variables [survey-link] or [survey-queue-link] are included in the SMS text, it will mistakenly remove the URL from the message but leave the link's label. (Ticket #89621)

Version 10.2.0 (released on 2020-07-31)

CHANGES IN THIS VERSION:

- **New feature: Integration of Paul Litwin's Stealth Queue external module**
 - New "Keep the Survey Queue hidden from participants?" setting in the "Set up Survey Queue" dialog on the Online Designer
 - This setting will keep the Survey Queue table hidden from participants, and will force Auto Start to be enabled for all queue-activated surveys. This is useful if users wish to use the Survey Queue to automatically guide survey participants to the next survey without displaying the queue of surveys.
- **New hook: redcap_survey_acknowledgement_page** - Allows custom actions to be performed on a survey's acknowledgement/"thank you" page immediately after the survey has been completed. Note: This hook is different from the redcap_survey_complete hook because the redcap_survey_complete hook is not recommended if you wish to output HTML, CSS, or JS onto the survey page after the survey is completed (because the page may be redirected immediately after the survey is completed, thus the participant might never see anything output by this hook prior to the redirect). The redcap_survey_acknowledgement_page hook is recommended for outputting HTML, CSS, or JS onto the survey page after the survey is completed.
- **Improvements to the Data Resolution Workflow feature**

- When a user is opening a new data query and assigning the query to a user, there are new options to send a notification to the assigned user via email and/or REDCap Messenger to inform them about their query assignment.
- Attachment files that have been uploaded to an opened data query may now be deleted after the fact, if needed. Note: As a precaution, only REDCap administrators may delete such attachments.
- For existing data queries, users may now be assigned to an opened query after the fact, and if the data query already has a user assigned to it, it may be reassigned to another user.
- Bug fix: When using the Clinical Data Interoperability Services with Cerner EHR, the FHIR results could mistakenly return as paginated, thus not returning the entire data set expected.
- Bug fix: If an alert is set to be recurring or is set to send only once but not "Immediately", then if the alert fails to send (e.g., if the recipient's address is blank/has no value), it would mistakenly keep trying to send repeatedly every minute. And if the "Email to send email-failure errors" option is set, then the recipient defined for that option would mistakenly get sent an email every minute for every record upon which the alert has been triggered, which could mean that thousands or tens of thousands of emails will get inadvertently sent per day.
- Bug fix: A bug fix was made in REDCap 9.5.26 LTS and 10.0.3 Standard to truncate long field labels and multiple choice labels for fields in any stats package file downloaded from the Data Exports page. However, this should have only been applied specifically to SAS exports since the truncation can cause issues in other stats packages when certain labels are very similar, thus making it difficult to tell fields apart from one another. This truncation of labels now only occurs during SAS exports.
- Bug fix: When REDCap is using an SSL database connection, while most pages in REDCap will work normally, some pages might mistakenly crash due with a fatal PHP error for some types of database connections pertaining to the use of specific SSL certificate-related parameters. (Ticket #89096)
- Bug fix: The "Redirect to a URL" survey termination option would allow survey URLs to be entered but would mistakenly not allow survey queue URLs to be entered.
- Bug fix: When using the datediff() function in a calculated field or branching logic in which the date format parameter is not provided but the returnSignedValue parameter is provided as the fourth parameter, then it would mistakenly result in an error popup on the survey page or data entry form. Bug emerged in REDCap 9.9.2. (Ticket #89007)
- Bug fix: When a REDCap administrator is adding or editing an alert in a project in which they are not a user, if the admin selects their own email address as the Email To, CC, or BCC for the alert, it would mistakenly not save their email address correctly for the alert, which would often prevent the alert from sending successfully upon being triggered. (Ticket #89226)

Version 10.1.5 (released on 2020-07-24)

CHANGES IN THIS VERSION:

- Minor security fix: If a malicious user has knowledge of REDCap's infrastructure and code, they could potentially make calls to a specific REDCap end-point that is used to ping third-party web services that REDCap utilizes throughout the application, in which carefully-crafted calls to this end-point could cause service account information from the platform to be returned back and leaked to the user. This issue appears to only exist when hosting REDCap on certain cloud-based hosting platforms, such as Google Cloud.
- Improvement/change: When running Data Quality rule H on a project with many hundreds or thousands of records, the rule might mistakenly time out or might crash due to a PHP memory limit error, in which none of the calculations could ever be corrected by rule H if it timed out or crashed. To prevent this, rule H will perform an internal batching of 100 records at a time to ensure that the rule will execute more efficiently and thus will finish successfully. Note: The internal batching process will occur invisibly, so nothing will appear different at all with regard to user experience.
- Bug fix: If the [survey-link] Smart Variable is being utilized for an instrument that is not enabled as a survey, it would mistakenly return a blank value/string rather than of six underscores, and if custom text is provided as a parameter for the Smart Variable, it would return a hyperlink with a blank value for the "href" attribute.
- Change: In the field-view display of the Online Designer, each field will no longer have a link to open the instructional popup for Field Embedding (since this is a bit repetitive), but instead there will be a single floating box on the right side of the page for informing users on how to utilize Field Embedding and for opening the popup. (Ticket #88418)
- Bug fix: Addressed issues with regard to incremental upgrades in which SQL errors might occur when upgrading from very old versions.
- Bug fix: When downloading a PDF of an instrument/survey containing data, if a single word in the text data of a Notes field exceeds the maximum width of the text in the PDF, such as if a long URL exists in the text data, it would mistakenly cause the text to get split up with one word on each line, thus making the text unnecessarily tall in the resulting PDF. (Ticket #86991)
- Bug fix: If a longitudinal project is utilizing the randomization module, and somehow the event mapped for a strata field or randomization field has been set to NULL (missing a mapped event) on the backend (possibly due to various changes in the project after the randomization model had been saved), it would fail to display the randomization button on the data entry form for any event. To make users aware of this issue when this occurs, it will now display a warning message on the randomization setup page and inform the user how to correct the issue. (Ticket #88594)
- Bug fix: The "email" field validation was slightly incorrect and would allow a period/dot to be entered immediately before the @ symbol in an email address that was entered in an email-validated field, in which this should not be considered a valid
- Bug fix: On PHP 7.4.6+, some pages in REDCap (e.g. Add/Edit Records page) were loading much slower than expected. This fix should resolve this slowness; however, it has not been officially confirmed. email address.
- Bug fix: When an embedded field has branching logic and is also a required field, if the embedded field is currently hidden by branching logic when the survey page or data entry form

is submitted, REDCap will mistakenly display the "Some fields are required" message for that field. It should never display that message for fields hidden by branching logic. (Ticket #88864)

Version 10.1.4 (released on 2020-07-17)

CHANGES IN THIS VERSION:

- **Major bug fix:** When piping is being performed or when logic is being evaluated that contains an event-based Smart Variable that is prepended to a field variable (e.g., [first-event-name][age]), it might not get parsed correctly and might mistakenly return an incorrect result.
- Bug fix: When more than one auto-complete drop-down field is embedded inside another field on a data entry form or survey page, only the first embedded auto-complete drop-down in that table row would get enabled and function correctly. Thus all other drop-downs in that row would mistakenly not function.

Version 10.1.3 (released on 2020-07-17)

CHANGES IN THIS VERSION:

- Change: The text was updated for the REDCap features listed on the REDCap Home Page.
- Bug fix: When sending emails via the Mandrill Email API, the SendGrid Email API, or while using the Google App Engine platform for hosting, attachments on emails would mistakenly not retain their original file name in the email received.
- Bug fix: In the API Playground, the example R code produced for API method "Export PDF file of instruments" was missing certain arguments (record, instrument, event), and also was mistakenly missing quotes around the API token value. (Ticket #88079)
- Bug fix: When a calculation or branching logic references a field from a repeating instrument or repeating event, in which the instance number or an [X-instance] Smart Variable is explicitly provided (e.g., [field][current-instance] + [field][2] + [field][3]), the JavaScript version of calculations and branching logic that runs on a form/survey page might mistakenly assume the value as a string of text even when the field is a number/integer field type, thus resulting in an incorrect value displayed on the page. However, the correct value would be saved for a calculated field on the page after clicking the Save button. Note: For calculations, data imports and Data Quality rule H would still be correct and store the correct value. (Ticket #88143)
- Bug fix: When a field is embedded inside another field that is being hidden by branching logic on the page, it might cause a "BRANCHING LOGIC ERRORS EXIST!" error to mistakenly appear on the data entry form or survey page. (Ticket #88134)
- Bug fix: When importing a CSV of arms on the Define My Events page, it would mistakenly allow an arm's number to be imported with a value of "0", which is not allowed and causes issues with accessing records in that arm afterward in the user interface.
- Bug fix: When using a calculation or conditional logic in a longitudinal project that contains repeating instruments and/or repeating events, if a checkbox field is referenced in the calc/logic and has an [X-instance] Smart Variable appended to it (e.g., [checkbox_name(2)][last-instance]),

the calc/logic might mistakenly not get parsed correctly and might return an incorrect result. This only occurs for checkboxes on repeating instruments/events in longitudinal projects. (Ticket #88065)

- Bug fix: When viewing the instrument/event options for Report B on the "Data Exports, Reports, and Stats" page in a project, the instrument/event multi-select fields would mistakenly be too narrow and would often prevent users from being able to distinguish which instruments/events they are selecting. (Ticket #88261)
- Bug fix: CSV files that are exported for the following places might be exported as UTF-8 encoded but would mistakenly be missing the BOM (Byte Order Mark): export for randomization template allocation tables, export for Automated Survey Invitations in the Online Designer, and the export for the "E-signature and Locking Management" page. (Ticket #87787)
- Bug fix: If users have bookmarked the link to the PDF archive tabs in the File Repository for either the survey PDF Auto-Archiver or the Record-level Locking Enhancement (PDF confirmation & automatic external file storage) feature, and either of those features have been disabled in a given project, the user would mistakenly be able to view those pages in the File Repository and possibly download PDF files from those pages if those features were previously enabled and utilized in the project.
- Bug fix: When piping the [form-url] or [form-link] Smart Variable when they have an [X-instance] Smart Variable appended to them, in which the "instrument" parameter of [form-url] or [form-link] is not specified, it might mistakenly return a blank value instead of the URL/link.
- Bug fix: When a slider field's value is being piped onto the same instrument or survey page in which the slider itself is located, it might mistakenly not update the piped value on the page when the user modifies the slider value, such as when initially clicking on the slider to activate it or when clicking the slider's "reset" link.
- Bug fix: The documentation for the developer method REDCap::saveData() was incorrect with regard to what "item_count" represents in the returned response, specifically for type="flat" data. (Ticket #88378)
- Bug fix: When a REDCap administrator is using the "View Project as User" feature on a user that has been assigned to multiple Data Access Groups via the DAG Switcher, the "Current Data Access Group" banner would mistakenly not be displayed at the top of the page for the administrator. (Ticket #88392)

Version 10.1.2 (released on 2020-07-10)

CHANGES IN THIS VERSION:

- **Major bug fix:** If calculated fields in a project have the exact same calculation/equation as another calc field in that project, it could cause incorrect values to be returned and saved for those calc fields when submitting a form/survey, when importing data, or when running Data Quality rule H. Bug emerged in REDCap 10.0.7 (LTS) and 10.1.1 (Standard). This bug might also affect the results of custom Data Quality rules, but it is currently unknown if this is true. This would only affect calculations that were triggered by data changes after upgrading to 10.0.7

(LTS) and 10.1.1 (Standard), in which they can be fixed afterward by running Data Quality rule H in a given project.

- Bug fix: Some language variables were duplicated and mistakenly overwrote some text on the Field Embedding instructional page/popup. (Ticket #87989)
- Bug fix: The Easy Upgrade feature might mistakenly not execute the entire SQL upgrade script for certain web server or database server configurations (the ultimate cause is unknown). This could cause problems after the upgrade completes in which the Auto-Fix feature might not be able to fix it without some extra SQL needing to be run. (Ticket #87994)
- Bug fix: The parsing of some conditional logic might mistakenly fail with a fatal PHP error for unknown reasons, possibly only for specific PHP versions. (Ticket #87983)
- Bug fix: If a "Designated email field for sending survey invitations" is being used in a project, in which that email field exists on a repeating instrument or repeating event, then the Survey Invitation Log page would mistakenly fail to display the record name for a scheduled/sent invitation and would instead display the slash-eye icon to indicate that the record name is not displayable. (Ticket #87795)

Version 10.1.1 (released on 2020-07-09)

CHANGES IN THIS VERSION:

- **Critical bug fix:** When collecting data using a public survey where multiple participants are entering data near-simultaneously (i.e., submitting the survey within the same fraction of a second), a scenario may arise in which those multiple responses could get partially merged together. When this occurs, it appears in the logging that two new records were created, but on some occasions the second participant ends up overwriting the first participant's responses. This issue only occurs when the project's back-end Record List Cache gets out of date and somehow doesn't include some of the new records created via the public survey. While this issue is fairly rare, it can cause data loss when a participant accidentally overwrites another's response, and the worst-case scenario could be that a participant ends up viewing another participant's response, thus possibly resulting in a privacy leak if private and/or identifying information (e.g., PHI) has been entered on the survey.
- **New feature: SendGrid Email API Integration**
 - As an alternative for sending outgoing emails from REDCap (rather than using the standard settings in PHP.INI to send them natively from the web server), you may use SendGrid, which is a third-party paid service (owned by Twilio) that can send emails on behalf of REDCap.
 - The option can be configured on the General Configuration page in the Control Center. You merely have to provide the API key for your SendGrid account, and it will begin using the SendGrid Web API to send *all* emails going out of REDCap.
- **New feature:** Select and modify multiple fields together on the Online Designer - Users may select multiple fields on the Online Designer by holding the Ctrl, Shift, or Cmd key on their keyboard while clicking on the field in the table, which will reveal the options to Move, Copy, or

Delete all the selected fields. To make users aware of this feature, a floating note now appears near the right side of the page in the Online Designer with instructions on how to use this.

- **Improvement:** Projects that have the Clinical Data Mart feature enabled will now be able to export the Clinical Data Mart settings in the Project XML file for the project and thus will be able to create new projects using that Project XML file as an alternate means of creating a Data Mart project. Note: Users will still be required to have system-level Data Mart permissions (granted by an admin) in order to use the XML file to create a Data Mart project.
- **Major bug fix:** If a record has been locked at the record level and the record is renamed, the record will mistakenly no longer appear to be locked anymore.
- **Major bug fix:** If a record has been locked at the record level and then the record is deleted and another record is created with the same name, the new record will mistakenly be initially locked after creation and have the same lock status and lock time as the original record bearing its name.
- Bug fix: Branching logic now works for embedded fields - A JavaScript issue (which is resolved separately in this release) was affecting embedded fields and made it impossible for a field's branching logic to function if it was embedded inside another field. Now that the other issue has been resolved, it has unblocked the issue that prevented branching logic from functioning for embedded fields. Thus, fields embedded inside other fields will now be hidden/displayed appropriately according to their own defined branching logic, as was originally intended with the embedded fields feature. Note: The documentation regarding branching logic for embedded fields has been modified accordingly to reflect this change in behavior due to the fix.
- Bug fix: If a slider or file upload field is being hidden by branching logic, they would mistakenly not get reset back to their original state with the slider placed back at mid-position and the file upload field reset back to the "Upload file" link, respectively. This would be very confusing to users if the fields were hidden by branching logic, in which their field was erased, and then while on the same page, the fields were revealed again looking as if they had a value when they actually did not.
- Bug fix: Only administrators that have the specific admin privilege "Access to all projects and data" could create a General Notification in REDCap Messenger. This is a mistake. Instead it should be that a user that has at least one of any type of admin privilege can create a General Notification.
- Bug fix: When clicking the "All custom" button on the Data Quality page, it would mistakenly execute rule 1.
- Bug fix: When using Data Access Groups in a project, if a user was added to the project's User Rights page with a capital letter in their username, then the Data Access Groups page would mistakenly display the user's username and name as blank (with only a comma displayed) in the "Users in group" column on the page. (Ticket #86811)
- Bug fix: If a File Upload field is embedded in the choice label of a radio button or checkbox field, it would mistakenly overlap the choice label text.
- Bug fix: When importing data via the API for a repeating instrument, many of the normal checks that ensure that the fields "redcap_repeat_instrument" and "redcap_repeat_instance" have valid values were mistakenly getting bypassed and thus not performing all the necessary checks to ensure the best data quality during the import. For example, importing a field on a

repeating instrument but leaving the "redcap_repeat_instance" field blank would not return an error but would instead assume the value is "1", which should not be assumed. (Ticket #75854)

- Change: When a user accesses a project for which their user privileges have expired, it now tells them to contact the project owner rather than telling them to contact the REDCap administrator.
- Bug fix: When using the Clickjacking Prevention feature, it would mistakenly prevent REDCap from being embedded inside an EHR when using the Clinical Data Pull (CDP) EHR launch.
- Bug fix: If using the Mandrill Email API integration to send emails from REDCap, it would mistakenly fail to add the appropriate file attachments (when applicable) to any outgoing emails and would instead send emails successfully without any attachments.
- Bug fix: If a text field or notes field is embedded inside a radio button or checkbox field on a survey, in which the Enhanced Radio/Checkbox setting has been enabled for the survey, it would prevent participants from using the Space key when entering a text value for the embedded field.
- Minor security fix: Prevention of CSV injection - Users or survey participants could enter +, -, @, or = at the beginning of a text field's value, and if a user is performing a CSV export of the data and opening the file in Excel (and possibly other spreadsheet software), it could cause that data to be inferred as a formula by Excel, which could have some security consequences. In these cases if a data value in a CSV Raw or CSV Labels export begins with one of those characters, a space will be prepended to the text value to prevent this issue from occurring.

Version 10.1.0 (released on 2020-06-30)

CHANGES IN THIS VERSION:

- **New feature: Granular administrator privileges** - There now exist seven different categories of privileges that may be attributed to a REDCap administrator. If a user has at least one admin privilege, they are considered a REDCap administrator and thus will be able to access the Control Center; however, they will only be able to access the things to which they have been granted access. Note: Following the upgrade to v10.1.0, any users who were designated as REDCap administrators beforehand will now have all seven categories enabled. Thus they will not lose any privileges at all after the upgrade. Listed below are each of the admin privilege categories and an explanation of what they mean and where they apply.
 - **Set REDCap Administrator Privileges** – User can access the 'Administrator Privileges' page (i.e., this page), and can set admin rights for any user.
 - **Access to all projects and data with maximum user privileges** – User has full access to all REDCap projects in the system and has maximum privileges within those projects. Within the Control Center interface, the user can access and use the following pages that pertain to project administration: To-Do List, Survey Link Lookup, and API Tokens.
 - **Manage user accounts** – User can access, modify, and (if using Table-based authentication) create REDCap user accounts. The following pages can be accessed and utilized: Browse Users, Add Users, User Allowlist, and Email Users.

- **Modify system configuration pages** – User can modify settings on all system configuration pages in the Control Center, which includes all pages listed under the 'Miscellaneous Modules' and 'System Configuration' sections on the left-hand menu. Note: If the user does not have this specific privilege but does have at least one other administrator privilege, they may still access and view the system configuration pages but only in read-only mode.
- **Perform REDCap upgrades** – User can access tools used for upgrading the REDCap software, including notifications about new versions available and also accessing the Easy Upgrade feature (if enabled). Note: This admin privilege does not apply when upgrading REDCap using traditional methods (i.e., when not using the Easy Upgrade) because the traditional upgrade process occurs mostly outside of the REDCap user interface in a database client and via direct server access.
- **Install, upgrade, and configure External Modules** – User has the ability to install External Modules from the REDCap Repo, and can enable and configure them at the system level. This does not apply to enabling and configuring an External Module in a project, which is governed by other user privileges. Note: If the user does not have this specific privilege but does have at least one other administrator privilege, they may still access and view the External Modules page in the Control Center but only in read-only mode.
- **Access to Control Center dashboards** – User can access and utilize all pages listed under the 'Dashboard' section of the Control Center's left-hand menu.
- Change/improvement: In Alerts & Notifications, the email "To" field that is used for an alert now allows fields having custom email validation (i.e., added manually in the redcap_validation_types database table) to be utilized as the recipient. Previous versions only allowed fields to be used that had the explicit "email" field validation.
- Bug fix: When using the color-picker to edit the text color or background color of a Project Folder on the My Projects page, the text field to add/modify the hex color code would mistakenly be disabled when it should instead be editable.
- Bug fix: If an External Module is calling REDCap::saveData() in a project using Twilio for surveys or Alerts & Notifications, depending on the context it might mistakenly throw a fatal PHP error if the call to REDCap::saveData() triggers a voice call or SMS message via Twilio.
- Bug fix: On the System Statistics page, the number of Completed projects would mistakenly not get included in the count of Total Projects. (Ticket #86998)
- Bug fix: The iOS version number would mistakenly not be detected accurately for iPads running iOS 13. (Ticket #87081)
- Bug fix: If the Clickjacking Prevention setting is enabled on the "Security & Authentication" page in the Control Center, it might prevent the Clinical Data Pull feature from working correctly when performing an EHR Launch in which a REDCap window is embedded inside an EHR user interface.
- Bug fix: When editing an alert on the Alerts & Notifications page, the "Email From" drop-down might mistakenly list the current user's email address twice, in which the second instance might have the text "[email no longer belongs to a project user]" appended to it.

- Bug fix: When adding a new Table-based user via the "Create User (bulk upload)" tab on the "Add Users (Table-based Only)" page in the Control Center, it might give an inaccurate and confusing message if that user account already exists. (Ticket #87143)
- Change: Support for Internet Explorer 9 has been removed.

Version 10.0.4 (released on 2020-06-23)

CHANGES IN THIS VERSION:

- Improvement: In REDCap 10.0.2, a new feature was added to the Online Designer's "Add/Edit Branching Logic" dialog to help users modify branching logic for many fields at once if they had the exact same branching logic. Now this has been improved further so that if users do not want to keep seeing this prompt when editing branching logic, a new checkbox in the dialog that says "Do not show this message again" can be checked, which will prevent the prompt from being displayed in that project for that user during the remainder of their REDCap session.
- Change: When using the new Break the Glass feature as part of the CDIS (Clinical Data Interoperability Services) functionality, it now requires that you enter your password for your REDCap account for increased security as part of the Break the Glass process.
- Various fixes and updates for the External Module Framework
- Bug fix: If Missing Data Codes are utilized in a project and a number-validated or integer-validated text field is used in branching logic in which the value of that number/integer field is a non-numerical Missing Data Code, the branching logic might not behave as expected. Bug emerged in REDCap 9.9.2. (Ticket #86841)

Version 10.0.3 (released on 2020-06-19)

CHANGES IN THIS VERSION:

- Change: To be more inclusive in our community, all references to the terms "blacklist" and "whitelist" have been replaced with "blocklist" and "allowlist", respectively, in the REDCap user interface, the REDCap code, and in all database table names and columns.
- Bug fix: If using the HTML tags OL or UL inside the choice label of a left-aligned radio button or checkbox field, the labels might mistakenly overlap on top of the bullets and make them hard to read. This was supposedly fixed in the previous version, but that fix only addressed right-aligned radios/checkboxes.
- Change: When exporting data to a stats package (R, Stata, SPSS, SAS), if a field contains a long field label, it now truncates the field label in the center of the text (i.e., putting an ellipsis in the middle) to make it more compatible with and easier to read in certain stats packages.
- Bug fix: When performing an "EHR Launch" for the Clinical Data Pull feature, it would fail to load the REDCap window inside the EHR user interface due to a fatal PHP error. Bug emerged in REDCap 10.0.2.

- Bug fix: The "reset" link for embedded radio button fields would mistakenly be left-aligned instead of right-aligned.
- Bug fix: If Field Embedding is used on an instrument in which the field being embedded is a required field, the user would not receive the required field warning if the embedded field was left empty when the instrument was saved.
- Bug fix: When viewing the Sponsor Dashboard page, if the user is a sponsor of many users, then when the page is scrolled downward, the table header would mistakenly get obstructed and covered by the top navbar.
- Bug fix: On the My Projects page, the field count hyperlink in the Fields column would mistakenly link to the Online Designer even if the user did not have Project Setup & Design privileges, which would result in an "Access Denied" message when following that link. In that case, it now links to the Codebook instead. (Ticket #86602)
- Change: When copying a project via the Copy Project page, Alerts & Notifications will now be automatically set to "Deactivated" status in the newly created project, similar to Automated Survey Invitations when copying a project. This is to ensure that they do not start getting triggered and start sending if all the project records were copied from the original project.
- Bug fix: When sending an Alert as an SMS message via Twilio, the SMS would mistakenly only go to one recipient (and perhaps multiple times to that same recipient) if more than one SMS recipient was listed for the Alert. (Ticket #86623)
- Bug fix: If a survey title contained HTML tags, those tags would mistakenly get displayed as escaped characters in the Survey Queue setup dialog and on a record's Survey Queue page.
- Bug fix: When an administrator is resetting the password of a Table-based user's account on the Browse Users page, it would mistakenly send the email with the From as the admin's name/email when it should instead send it with the From as the general administrator name and email address that is defined for the system.
- Bug fix: When adding users to a project using the API Import Users method, the format of the usernames were mistakenly not being checked and thus would allow usernames containing invalid characters to be added to projects.
- Bug fix: When a radio button field is embedded via Field Embedding in another field on an instrument, and that instrument is enabled as a survey and has the Enhanced Radios/Checkboxes option enabled, then if a participant is taking the survey and selects a choice for the field and then clicks the "reset" button to de-select it, although this action would correctly remove the radio value, it would appear as if it hadn't been de-selected, which is confusing. (Ticket #86645)
- Bug fix: When using Twilio telephony services for surveys, in which the default invitation preference for new survey participants has been set to a value other than "Email", when new records are created in the project specifically via the API Import Records method, those participant's invitation preference in the Participant List would mistakenly not get set to the correct value but would always get set to "Email". Note: If importing data via the Data Import Tool, the invitation preference would get set correctly. (Ticket #86673)
- Change: In previous versions, date fields that have Y-M-D date format would allow M/D/Y format values (i.e., American format dates with slashes instead of dashes) to be entered, in which it would automatically reformat the value to a Y-M-D format date with dashes. This is a

very old behavior from the earliest days of REDCap that was meant to be a convenience for users, who were mostly from the U.S. at that time. However, since that time REDCap has grown internationally, and it is no longer U.S.-centric as it was in the early days. It makes more sense at this time to remove this old behavior so that Y-M-D date formats only accept Y-M-D formatted values. (Ticket #86446)

- Bug fix: If the Save & Return Later feature has been enabled on a survey but participants are not allowed to return once they have completed the survey, then there is a scenario in which a participant could mistakenly erase all their survey responses after having completed the survey. If they partially complete the survey and then return back to the survey page, in which it asks them to either enter their Return Code or erase all their responses and start over, if that page is opened twice in two different browser tabs, and then the participant completes the survey in one tab and then later views the other tab and clicks the "Start Over" button, it would mistakenly erase all their responses, even though they should not be able to modify their responses after having completed the survey.
- Bug fix: When an alert has the option "Using conditional logic during a data import or data entry" selected in Step 1 in the "Edit Alert" dialog, in which the alert's conditional logic contains the datediff() function with "now" or "today" as a parameter, if the project is longitudinal and the logic also explicitly references a field in a specific event (i.e., has the unique event name prepended to the field variable), if that particular event being specified has no data in it, then the logic would mistakenly not get evaluated correctly, and the alert would not get triggered/scheduled correctly by the "AlertsNotificationsDatediffChecker" cron job. (Ticket #86689)

Version 10.0.2 (released on 2020-06-11)

CHANGES IN THIS VERSION:

- Improvement: Integration of Günther Reznicek's "My Projects Tweaks" External Module - Improvements for the My Projects page
 - Adds project PIDs (for REDCap Admins only): Adds a new PID column (in between Project Title and Records). The PIDs are links that lead to the Edit Project's Settings page.
 - Link to Online Designer: Adds links to the Online Designer page of projects in the Fields column.
 - Link to Record Status Dashboard: Adds links to the Record Status Dashboard in the Records column.
 - Collapse All: Adds a Collapse All button next to the Organize button that collapses all project folders.
 - Organize Projects filtering: Adds a filter in the Organize Projects pop-up.
- Improvement: When editing a field's branching logic in the Online Designer's "Add/Edit Branching Logic" dialog, when saving the branching logic for a given field, it will now check if any other fields in the project have identical branching logic and will prompt the user to ask them if they want to change the branching logic accordingly for all fields having the same branching logic.

- Change: The Control Center page "Find Calculation Errors in Projects" has been removed. It served a purpose several years ago to address specific issues with calculation errors that occurred during that time, but it has not been needed in quite a long time. If any calculation errors might exist in a project, as always they can be dealt with using Data Quality rule H.
- Bug fix: If a hyperlink is used inside a field label or section header text for a field on a survey or data entry form, in which the hyperlink is merely an anchor link to point to another place on the current page, then in some cases clicking the link would mistakenly prompt the "Save your changes?" dialog to be displayed unnecessarily if data had been added/modified on the page. (Ticket #85880)
- Bug fix: When the survey option "Allow survey respondents to view aggregate survey results after completing the survey?" is enabled on a public survey and a respondent completes the public survey, it would mistakenly not display the button to allow the respondent to view the aggregate survey results. Bug emerged in REDCap 9.10.0 Standard and 9.5.28 LTS.
- Bug fix: If a vertically-aligned radio button field is embedded in a table in a section header, the choice labels would mistakenly cover the radio button elements themselves and make them either hard to see and/or hard to utilize.
- Bug fix: Some math functions used in calculations and branching logic (e.g., max, min, sum) might mistakenly yield an incorrect result (often a blank value) if a multiple choice field is referenced inside the function in which the multiple choice field has all numerical codings but at least one of the codings is a negative number. Bug emerged in REDCap 9.9.2.
- Bug fix: The API method "Export a Survey Queue Link" would mistakenly fail with a fatal error. Bug emerged in REDCap 10.0.1 Standard and 9.5.30 LTS. (Ticket #86155)
- Bug fix: If using the HTML tags OL or UL inside the choice label of a radio button or checkbox field, the labels might mistakenly overlap on top of the bullets and make them hard to read.
- Change: When viewing an Automated Survey Invitation in which the From address belongs to a user that no longer has access to the project, it would display the note "[email no longer belongs to a project user]" next to the email address, but it would not display that note for Administrators. It now displays it to both regular users and Administrators to eliminate any confusion.
- Change: When viewing an alert on the Alerts & Notifications page in which the alert's From address belongs to a user that no longer has access to the project, it now displays the note "[email no longer belongs to a project user]" next to that email address in the drop-down list.
- Bug fix: When using the Twilio telephony services for surveys in a project, if the "SMS Conversation" option has not been enabled in the project but a participant mistakenly replies back to an SMS they received from REDCap, it would begin the survey as if using the "SMS Conversation" option, which is incorrect. In this case, it now will reply back to them with an SMS saying "Auto-Reply: This SMS phone number is not monitored". (Ticket #61331)
- Bug fix: When the Save & Return Later option for a survey has been disabled but somehow a user has enabled the sub-option to "Allow respondents to return without needing a return code" for the survey, it would create a scenario via the Survey Queue in which the survey participant might be able to return to the survey even with Save & Return Later having been disabled. Bug fix: In some very specific cases when an External Module is calling the REDCap::evaluateLogic() method in a repeating event context, it might not mistakenly parse the

logic correctly if the logic contains a stand-alone [X-instance] Smart Variable (i.e., when it is not appended to a field variable). (Ticket #85914) (Ticket #85891)

- Bug fix: When executing Data Quality rule E ("Outliers for numerical fields") for a project that has Missing Data Codes defined, it might mistakenly return discrepancies for records that have a numerical Missing Data Code. It should instead be ignoring Missing Data Code values in this DQ rule. (Ticket #85991)

Version 10.0.1 (released on 2020-06-05)

CHANGES IN THIS VERSION:

- **Improvement: New “Break the Glass” feature for CDIS (used for both CDP and Data Mart)**
 - This feature is only for installations that have Epic as their EHR, and it is an add-on to the existing Clinical Data Interoperability Services (CDIS) in REDCap. If clinical data is being pulled via the FHIR services from Epic, and REDCap determines that data cannot be pulled for a given patient because the glass needs to be broken for that patient (because they are staff, a VIP, etc.), REDCap will keep a list of these patients, in which they can be selected afterward and have their glass broken by the user on the REDCap side. The user will be given a “break the glass” prompt very similar to the one that users would see inside Epic Hyperspace, and when they break the glass in REDCap, it will make a web service call to Epic to perform the “break the glass” action on behalf of the user, in which case it will get logged appropriately in Epic’s activity logs.
 - NOTE: Because the REDCap “Break the Glass” feature allows users to perform glass-breaking for many patients at once, this feature (once enabled at the system level) is DISABLED by default at the project level due to the possibility of abuse. So an administrator will need to enable this feature for a given project
 - The Break the Glass settings can be set on the Clinical Data Interoperability Services page in the Control Center. It must be enabled and set appropriately for the given Epic installation. Note: The Break the Glass web services must be enabled on the local Epic Interconnect server in order for this feature to work in REDCap.
- **Improvement: Survey pages are now considered ADA Section 508 compliant.** The REDCap Development Team at Vanderbilt has been collaborating with the CDC to improve the accessibility of REDCap overall. While the user-facing side of REDCap (i.e., non-survey pages where users must authenticate) is not 508 compliant, it continues to be improved with regard to accessibility over time. But according to the CDC’s recommendations and testing of REDCap, survey pages in REDCap do meet the minimum requirement for ADA Section 508 compliance.
- Bug fix: If upgrading to 9.10.0 from a version lower than 9.9.2, it would result in duplicate queries being added to the upgrade script, thus resulting in MySQL errors during the upgrade. (Ticket #85303)
- Bug fix: If two users load the same data entry form in a project (i.e., same record, event, instrument, instance), in which one of the users has clicked the plus/minus icon on the left-hand menu to collapse/uncollapse a menu section after loading the form, it would mistakenly not

display the Simultaneous User Prevention warning and thus would allow both users to have edit access on that form. (Ticket #85305)

- Change: Permanently removed some PHP global functions files ([form_renderer_functions.php](#), [survey_functions.php](#)) since they have been gutted and no longer utilized for several months.
- Bug fix: Some CSS styling in REDCap's style.css file was mistakenly overwriting CSS used specifically by DataTables, which could affect the look and style of any DataTables used in a plugin or external module. The CSS has been reverted so that it no longer overwrites the DataTable CSS. Bug emerged in REDCap 9.9.0 (Standard). (Ticket #85306)
- Bug fix: If a field is embedded via Field Embedding into the choice label of a radio button or checkbox field and then is viewed on a survey in which the Enhanced Choice survey option is enabled for radios and checkboxes, then an error message would mistakenly get displayed on the survey page saying that the field had been embedded more than once, which is not true.
- Bug fix: A JavaScript error might occur on a survey page where it tries to call the undefined function displayFormSaveBtnTooltip(). This error does not seem to cause any issues on the survey though.
- Bug fix: For certain screen widths, the search box displayed above a report might mistakenly be displayed too far to the right on the page. (Ticket #85415)
- Bug fix: If Field Embedding is used in which a text field is embedded inside the choice label of a checkbox field, then if the checkbox is checked or unchecked by clicking its choice label (rather than by clicking the checkbox element itself), then it would fail to change the value of the checkbox field despite the fact that it looks like its value has changed. (Ticket #85387)
- Bug fix: The database query used to generate the list of a record's repeating instances for a given instrument was not correctly optimized and was causing major performance issues for certain projects on certain installations. (Ticket #84936)
- Change: The @READONLY action tags now display the field labels as slightly less faded out (using 60% opacity instead of 50% as in previous versions), and the text of drop-downs, text boxes, and textarea boxes that have a @READONLY action tag now have a darker text to make them more readable despite being disabled on the page. (Ticket #85396)
- Bug fix: When sending an Alert as an SMS message, if there is an email address selected for errors to be emailed to a project user in the event that the SMS fails to send for that Alert, it would mistakenly send the error email every time an SMS is sent rather than only when an error occurs.
- Bug fix: When a Yes-No or True-False field is piped into an Alert's email subject or message text, in which the alert is set to be sent after a delay (not immediately) and/or on a recurring schedule, then the value of the Yes-No or True-False field would fail to be piped into the text and instead would be replaced with 6 underscores as if the value did not exist.
- Bug fix: Reports that are very wide and very tall would have the fixed headers and fixed first column behavior automatically employed on the report table, but often times the scrollable width of the resulting table would be too wide and would run off the page, thus causing the user to have to scroll the main viewport first and then scroll the table second. It now tries to ensure that the scrollable table itself will fit on the page so that only one instance of horizontal scrolling is required.

- Bug fix: When upgrading to version 10.0.0 from a previous version, it would mistakenly place the v10.0.0 upgrade SQL queries before the other cumulative upgrade SQL queries for previous versions that were being upgraded through (the in-between versions). The SQL queries being out of order might cause some issues during the upgrade process. (Ticket #85668)
- Bug fix: The Easter Egg functionality of appending ""&__display_errors=1" to the URL in order to force output a PHP error onto the webpage has now been removed for all cases except for authenticated REDCap administrators because it is a potential security issue.
- Bug fix: Nearly 200 Laboratory and Vital Signs 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: When using the Smart Variable [survey-queue-link] in a context where the current record does not yet exist (e.g., on the first page of a public survey), it would mistakenly return a URL that might not actually be associated with the record after the record has been created. Instead it now returns a blank value if the record does not yet exist. (Ticket #85602)
- Bug fix: If Field Embedding is used for at least one field on a survey or data entry, it would cause all auto-complete drop-down fields not to display correctly. (Ticket #85744)
- Bug fix/change: The Field Embedding feature now notes in the documentation that the Record ID field cannot be embedded, and if a user tries to embed it, it will now display a warning on the survey or data entry form. (Ticket #85739)
- Bug fix: The REDCap hook named "redcap_survey_complete" would get mistakenly called when a survey participant would attempt to return to a completed survey that has the "Save & Return Later" option enabled when the sub-option is enabled to allow respondents to return without needing a return code - i.e., when it displays the message "Thank you for your interest, but you have already completed this survey". (Ticket #80109)

Version 10.0.0 (released on 2020-05-29)

CHANGES IN THIS VERSION:

- **New feature: Field Embedding**
 - Field Embedding is the ultimate way to customize surveys and data collection instruments to make them look exactly how you want. Field Embedding is a Shazam-like feature that allows you to reposition field elements on a survey page or data entry form so that they get embedded in a new location on that same page. Embedding fields gives users greater control over the look and feel of your instrument. Users may place fields in a grid/table for a more compact user-friendly page, or they can position fields close together in a group if they are related.
 - To use Field Embedding, users simply need to place the REDCap variable name of a field inside braces/curly brackets - e.g., {date_of_birth} - and place it in the Field Label, Field Note, Section Header, or Choice Label of any other field on that same instrument. Field embedding will not work across instruments but only on the current instrument/survey being viewed. If on a multi-page survey, then the embedded field must be on the same survey page as its host field.

- No action tags or custom HTML is required to use Field Embedding. Users can simply use the rich text editor in the Online Designer to design their layout and then place the field variables inside that layout. The layout does not have to be a table/grid (although tables are common for this), and fields can be embedded inside *any* field type (not just Descriptive fields).
- We wish to thank Andy Martin (Stanford) because his popular Shazam external module served as the conceptual inspiration of the Field Embedding feature.
- Note: When installing or upgrading to v10.0.0, a new project “Field Embedding Example Project” will be automatically added as a project template to allow users and admins to easily see some examples of Field Embedding in action.
- Change: A new link to "REDCap Administrator Videos" has been added to the Control Center's left-hand menu under the "Administrator Resources" section, in which this link points to a page that consolidates many REDCap videos aimed at administrators on various topics.
- Change: Removed the thick black border seen on input fields that have focus for Chrome 83 and higher, which was by default adding the black border to all input fields on all webpages.
- Change/improvement: Added better error detection to make the data import process more accurate and informational by ensuring that any datetime_seconds values that are missing a “seconds” component will be reformatted to append “:00” and if any datetime values are missing a “minutes” component it will be reformatted to append “:00”, in which it will display a warning to the user on the Data Import Tool page to inform the user that these modifications are happening. Also, if the first two digits of the “year” component are missing for a date or datetime value, it now displays a warning to inform the user that the full year value will be estimated and will note the resulting estimated year value.
- Change: On the Survey Settings page, The Save & Return Later option "Allow respondents to return without needing a return code" now has a note immediately below it to encourage users not to use this survey option if they are collecting identifying information (PHI, PII) on their survey.
- Change/improvement: If the Twilio SMS and Voice Call services are enabled at the system level, the Twilio module can now be disabled (if desired) at the project level by an administrator on the "Edit a Project's Settings" page in the Control Center. If disabled for a given project, all references to the Twilio functionality will no longer appear in the project.
- Bug fix: Clicking on the "What is an E-signature?" link in the "Editing existing user" dialog on the User Rights page would mistakenly not do anything and would result in a JavaScript error.
- Bug fix: If a project does not contain any date or datetime fields, then when creating/editing an Alert or Automated Survey Invitation, the third "send time" setting's text would mistakenly be missing the text "after time lapse of" immediately after the text "Send the invitation/alert", which could cause confusion for users. (Ticket #84929)
- Bug fix: Report B would return incomplete returns when viewed on a webpage (but not when exported) under certain conditions, especially if the project is longitudinal. (Ticket #84937)
- Bug fix: When piping data into a drop-down field on a survey or data entry form that is a repeating instrument or exists on a repeating event, although piping would occur correctly when initially loading the page (using saved values), it would mistakenly not perform real-time

pipng on the page as fields were modified if those modified fields' values were being piped into drop-down fields on that same page. (Ticket #84951)

- Bug fix: When the Double Data Entry module is enabled in a project, the Current Users table on the Project Home page might mistakenly get partially covered by the Project Statistics table. (Ticket #84903)
- Bug fix: When setting a Missing Data Code for a field, it would mistakenly hide all buttons in that row instead of only the Today/Now button for date/datetime fields. (Ticket #84909)
- Bug fix: When composing multiple batches of survey invitations on the Participant List page without refreshing the page in between batches and the user uses their mouse to highlight the existing email body text and then pastes new text using Ctrl-V into the email body without typing on the keyboard while the cursor is inside the email body text box, then the new pasted text might mistakenly not be used in that batch of invitations being sent, but instead it would send invitations using the default email body text. (Ticket #84351)
- Bug fix: When executing a custom Data Quality rule that has logic containing fields from both repeating and non-repeating contexts, in some cases the hyperlink for the data value displayed in the discrepancy dialog popup might mistakenly be pointing to a repeating context (e.g., URL contains "&instance=??") even though the field does not exist on a repeating instrument or repeating event. (Ticket #84934)
- Bug fix: The left-hand instrument menu in a project would mistakenly denote the maximum instance number of a repeating instrument rather than the total count of repeating instances, which can be confusing to users if some instances had been deleted after having been created. If the total count of repeating instances does not match the maximum instance number, then it will now display "max: X, total: Y" next to the instrument name to provide this distinction. Also, the "plus" icon next to a repeating instrument on the left-hand menu would mistakenly not appear if the first instance of the instrument had been deleted (this would occur when viewing the left-hand menu while on another instrument). Additionally, if a repeating instrument had its first repeating instance deleted, the form link on the left-hand menu would still mistakenly point to the first instance by default, which is not intuitive. It now points to the lowest existing instance of that instrument as the default. (Ticket #84943)
- Bug fix: The note "You may use HTML formatting in the email message..." was mistakenly still being displayed below the rich text editors when composing survey invitations in various places in a project. That note no longer makes sense now that the rich text editor must be used in these places, so the note has been removed.
- Change: If enabling the Survey Login feature in a project containing repeating instruments or repeating events, it now displays the clarifying message in the Survey Login setup dialog to users so that they are aware: "NOTICE: Fields existing on repeating instruments/events will not work as login fields". (Ticket #85208)
- Bug fix: In some situations where a data entry form or survey is being submitted after an External Module has relocated some fields on the page (e.g., Shazam), it may prevent the page from being saved successfully due to a JavaScript error. (Ticket #47120)
- Bug fix: The color picker popup used for Project Folders and for Survey Themes would not be displayed correctly after being opened, so the preset color palette of squares in the color picker had to be removed since they could not otherwise be fixed.

- Bug fix: When using Missing Data Codes in a project and a radio button or checkbox field has been assigned a missing data code for a given record, and then the user clicks one of the seemingly disabled choices of the field and then clicks Save, it would mistakenly change the value of the field to the choice that was clicked, even though it did not appear as if the field's value changed prior to saving it. (Ticket #85220)
- Change: The REDCap cron job now logs all events in the redcap_log_eventX table using the current time that the activity is logged - via PHP's date("YmdHis") - whereas previous versions would log all cron activity using the time at which the cron job script began. This is more optimal since cron jobs can sometimes last for many minutes, which makes it more difficult to troubleshoot the timing of certain issues with cron jobs. Regular non-cron scripts will still continue to log events using the time at which the script began.

Version 9.10.0 (released on 2020-05-21)

CHANGES IN THIS VERSION:

- **New feature: Record-level locking feature**
 - This feature allows users to lock an entire record (as opposed to locking individual instruments) so that none of the record's data can ever be modified unless someone with record-level locking/unlocking privileges goes and unlocks the record again.
 - The old "lock all forms for all events" feature has been changed into this new record-level locking feature, which is distinguishable from the existing instrument-level locking feature. Now the instrument-level locking can only be used while on a data entry form (using the Locking checkbox at the bottom of the form). Whereas the record-level locking feature is available as an option on the Record Home Page and on the project's left-hand menu after a record has been selected.
 - While records have always been able to be locked (i.e., made read-only) for individual data collection instruments in a project, you may now easily lock an ENTIRE record so that no data in the record can ever be modified while it is locked.
 - WHAT HAS CHANGED? It is important to note that the old user privilege "Lock all forms" has now been converted into the new record-level locking feature, which works completely independently from instrument-level locking (i.e., the checkbox at the bottom of data entry forms). Instead of that particular user privilege allowing you to lock all forms individually (which was the previous behavior), it will now serve in a slightly different capacity as the record-level locking user privilege to lock an entire record fully.
 - HOW TO USE IT: You may lock an entire record via the "choose action for record" dropdown on the Record Home Page or by clicking the "Lock Entire Record" link on the project's left-hand menu when viewing a record. Note: Since the record locking and instrument locking are completely separate features, they both may be used together in a project, if you wish. However, please note that since record locking is a higher-level locking than instrument locking, an entire record may be locked or unlocked while one or more instruments are currently locked, but an instrument cannot be locked or unlocked while the entire record is locked.

- **New feature: Record-level Locking Enhancement: PDF confirmation & automatic external file storage** (project-level setting) - requires PHP 5.6.0
 - This feature allows users to utilize extra functionality regarding the use of record-level locking in a project. It must first be enabled at the system level (at the bottom of the Modules/Services Configuration page in the Control Center). It is disabled by default for all projects, but users with 'Project Setup & Design' rights can enable it for a project in the Additional Customizations popup on a project's Project Setup page.
 - How it works: When enabled for a project, if a user goes to lock an entire record, they will be presented on the page with an embedded PDF of the entire record's data, and after confirming that the record is correct, the record will be locked at the record level and a PDF copy of the entire record will be stored in a "PDF Archive of Locked Records" section of the File Repository of the project and additionally will be stored on a secure external server via WebDAV or SFTP storage.
 - The connection to the external file server can be set up as WebDAV or SFTP, in which the details/credentials must be provided when enabling this system-level setting at the bottom of the Modules/Services Configuration page in the Control Center.
 - This feature may be utilized for projects wishing to adhere to certain regulatory compliance, such as 21 CFR Part 11 for FDA trials. Please note that enabling this feature does not make the feature or your REDCap installation automatically "Part 11 compliant". It is assumed that if using this for Part 11 compliance that you have already gone through all the processes of documenting and validating your REDCap environment (or parts of it) to validate it as "Part 11 compliant" beforehand.
- **Major bug fix:** When submitting a one-page public survey, in some specific scenarios after completing the survey, a participant could incidentally cause the survey to get resubmitted (minutes, hours, or even days later), thus creating a duplicate record in the project. This appears to occur mostly for certain mobile devices, in which returning to a tab containing the completed survey might mistakenly cause the survey to get resubmitted somehow. (Ticket #75626)
- **Major bug fix:** If a calculated field's equation contains a field with "Number (comma as decimal)" validation or "Number (X decimal places - comma as decimal)" validation, the calculation would mistakenly fail and would often result in an error prompt on the page stating that a syntactical error exists in the calculation, which is untrue. Bug emerged in REDCap 9.9.1. (Ticket #84622)
- **Change:** The project ID (PID) of a project is now displayed immediately after the project title at the top of every project page. This will make it easier for users to obtain their project's PID when attempting to identify their project to administrators.
- **Bug fix:** When using the Survey Login and clicking the "Show value" link for one of the login fields on the survey login form, it would fail to remove the password mask from the login field. Bug emerged in REDCap 9.9.0. (Ticket #84417)
- **Bug fix:** When using the Clinical Data Pull feature and viewing the embedded REDCap page in an EHR user interface, it would mistakenly display some escaped HTML on the page. (Ticket #84422)

- Bug fix: When uploading an MP3 audio file to be embedded in a Descriptive field on a survey page or data entry form, it might mistakenly not play in Internet Explorer.
- Bug fix: Seven 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: If a project is longitudinal and has either repeating instruments or repeating events, in which a field exists on both a non-repeating event/instrument and on a repeating event/instrument, then if that field is used as a report filter, the report might mistakenly return partially incorrect results. Part of this issue was caused by another fix in REDCap 9.9.1 Standard and 9.5.26 LTS, and the other part is a longer-standing issue caused by difficulty in parsing logic referencing different repeating and non-repeating contexts. (Ticket #84330)
- Bug fix: For longitudinal projects, the project Logging page would mistakenly display the name of the first event next to the record name for logged events related to Data Access Group assignments for records. It should not display the event name because assigning DAGs is performed at the record level and not at the event level, so displaying the event name for the logged event is misleading.
- Bug fix: The cron job to routinely reset the record list cache for all active projects was mistakenly not resetting the cache as often as it should.
- Bug fix: If a calculated field's equation contains certain Smart Variables (e.g., [project-id]), when saving the calc field in the Online Designer, it would note that it is syntactically incorrect, which is untrue. (Ticket #84524)
- Bug fix: When importing an instrument from the REDCap Shared Library, in which the instrument contains a checkbox field that is used in branching logic or in calculations in the imported instrument, and also that checkbox field's variable name already exists in the project as an existing variable, then when the variable is being automatically renamed during the instrument import process to prevent a conflict with the existing variable, it would mistakenly fail to perform the renaming successfully for checkbox fields, which require a slightly different syntax when being referenced in calc fields and branching logic.
- Change: If a project contains a large number of users and/or Data Access Groups, it now automatically disables the DAG Switcher feature. This is done because if the table becomes very large, it can cause a major slowdown in the user's browser and possibly cause it to crash. So any projects where Users X DAGs > 10K, the DAG Switcher will be disabled and will not be usable. Also, if a project has a count of Users X DAGs between 5K and 10K, it will still display the DAG Switcher, but it will auto-disable the floating headers and search features on the DAG Switcher table in order to prevent browser slowness. (Ticket #84610)
- Bug fix: The User Whitelist would fail to work when using external authentication methods (e.g., LDAP). (Ticket #83958)
- Bug fix: In the Required Fields dialog on data entry forms and surveys, one of the buttons mistakenly did not have its language abstracted for translation. (Ticket #81638)
- Bug fix: Downloaded PDFs would mistakenly result in the error "AddMBFont: ERROR Encoding [SJIS] Undefine" if the project's "Character encoding for exported files" setting was set to "Japanese (Shift JIS)".

- Bug fix: When exporting data to SAS while using Missing Data Codes in a project, if any fields contain the @NOMISSING action tag, such fields would mistakenly not be made exempt from the Missing Data Codes when importing the data into SAS. (Ticket #83910)
- Change: When exporting data to SAS, the line "OPTIONS nofmterr;" is now added to the SAS script to prevent any formatting issues from throwing fatal errors.
- Bug fix: When rendering a report or performing a data export in which the report contains some report filters, some extra processing was being done unnecessarily that was making the report slower than it should have been. This unnecessary code was removed, which now makes reports load faster (up to 2x faster in some cases) for reports with report filters.
- Bug fix: When a project that has record auto-numbering enabled exceeds 25,000 records in the project, then the text input field that is displayed (in lieu of a drop-down list) on the Add/Edit Records page would mistakenly allow users to free-form type a new record name that might not comply with the record auto-numbering scheme. To prevent this issue, it now checks to ensure the record being typed already exists.