Release of REDCap 8.5.13 (LTS)

The REDCap development team would like to announce a new REDCap release. Changes for this version are listed below. ENJOY!

BUG FIXES & OTHER CHANGES:

- Bug fix: When viewing the To-Do List in the Control Center, some requests might mistakenly still show up in the request counts even though the requester's account has been deleted from the REDCap system. (Ticket #48846)

- Bug fix: Certain database queries that check to make sure that a project's reports are in the correct order were getting run more than necessary, which would sometimes cause certain pages in a project to run slowly.

- Bug fix: After editing the branching logic of a field in the Online Designer, it would mistakenly chop off the first character in the branching logic when displaying it in red text on the page for the field. (Ticket #49098)

- Bug fix: When using DDP on FHIR to add a patient to a project, in some cases it would navigate to an incorrect non-existing record named "Undefined" in the REDCap project after clicking "View patient in project" button after creating the record via DDP on FHIR.

- Bug fix: When using DDP on FHIR, some LOINC codes related to Multiple Sclerosis were mistakenly missing from the DDP field mapping page.

- Bug fix: When creating a new Table-based user in the Control Center, in which the user's attributes contain special/non-Latin characters, then depending on the server's MySQL collation_connection, it might not save the user's attributes correctly in the database but may instead mistakenly garble them. (Ticket #48983)

- Bug fix: The To-Do List page in the Control Center would mistakenly display with the action buttons overlapping the previous column in the table. (Ticket #49096)

- Bug fix: When using DDP on FHIR, the information page/popup that describes how to use DDP to users was mistakenly missing the specific codings required for the three demography fields "sex", "race", and "ethnicity". The required multiple choice codings for those fields are now listed in the DDP on FHIR informational page that is accessible on the DDP on FHIR Control Center page and via the popup on a project's Project Setup page.

- Bug fix: When launching multiple patients using DDP on FHIR inside the EHR interface (i.e., multiple tabs during same session), if the user returned to an older tab/patient during the same session, it might mistakenly confuse it with the latest patient that was loaded, thus losing that tab's proper context for the patient and causing confusion for the user.

- Bug fix: If using MySQL 8.0 as the database, in certain cases the Control Control might erroneously display the "Database structure is incorrect" warning even though nothing is wrong with the database tables. (Ticket #49580)

- Bug fix: When exporting a project's Project XML file, for certain server configurations, it would cause the XML file to have all linefeeds removed from Section Headers and Field Labels. Note: This fix will not fix any Project XML files that have already been generated but will fix this issue for any XML files generated in the future. (Ticket #48719)

- Bug fix: If there exists piping, calculations, or conditional logic using the Smart Variables first-event-name or last-event-name that happens to be prepended to a checkbox field, in which a checkbox choice is explicitly specified inside parentheses, it would mistakenly return a list of all the checked-off checkbox labels instead of the checked-off status for the specified choice. (Ticket #49378)

- Bug fix: When a user attempts to place a production project into draft mode, it might mistakenly just reload the same page with no changes, thus preventing the project from being put in draft mode. (Ticket #6346)

- Fixes and updates for External Modules Framework

- Bug fix: If an External Module was using the API endpoint for assets (non-PHP pages), it would mistakenly enforce authentication on those assets, which would cause issues for certain authentication types, such as Shibboleth.

Release of REDCap 8.5.0 (Standard)

NEW FEATURES, BUG FIXES, & OTHER CHANGES:

- **Improvement: PDF Customization Options** – Users may change or remove the "Confidential" text displayed in the header of all PDFs in a project. Also, instead of displaying the REDCap logo and REDCap website URL at the bottom right of all PDF pages, they can instead choose to display the text "Powered by REDCap" in small font. These two settings are project-level, so they will be applied to every page of a PDF for all instruments in a project (for both forms and surveys). These settings can be found in the Additional Customizations popup on the Project Setup page. (Ticket #25326)

- Change/improvement: Protection has been added to help prevent the REDCap database connection's client character set (e.g., latin1, utf8, utf8mb4) from being affected 1) due to changes to the MY.CNF (or MY.INI for Windows) configuration file in MySQL, 2) due to a server

upgrade, or 3) due to migrating to a new servers. The current database connection's client character set will be stored in the redcap_config database table, and if the client character set ever changes on its own due to one of the reasons above, REDCap will automatically keep using the existing character set from the redcap_config table in order to maintain the correct encoding to prevent data corruption.

- Change/improvement: New installations of REDCap will utilize utf8mb4 as the default character set for both the database columns (previously set to utf8[mb3]) and client connections (previously set to that of the database server), which is defined in the MY.CNF (or MY.INI for Windows) configuration file in MySQL, or set to latin1 if non-existent. This default has been changed because utf8mb4 encoding can allow for a greater variety of non-Latin characters to be stored in the database. Existing installations will not be able to utilize utf8mb4 encoding but instead will keep using their existing encoding (if other than utf8mb4).

- Bug fix: When installing REDCap, it would mistakenly not auto-set the value of the REDCap Base URL on the install page.

- Bug fix: If using MariaDB 10.2 (or higher) for the REDCap database, the REDCap Control Center would display the erroneous error message "Your REDCap database structure is incorrect!". (Ticket #28083, #32131, #41911)

- Bug fix: When using the "Add/Edit Branching Logic" popup in the Online Designer, if certain Smart Variables are used in the branching logic, and then the user selects a record from the "Test logic with a record" drop-down, it might display an erroneous message saying the the logic is not syntactically correct.

- Bug fix: When performing a data import of radio buttons in a matrix that has ranking enabled, it would sometimes display an erroneous error message if two or more matrixes of questions are being imported at one time, thus preventing the import from completing. (Ticket #39804)

- Bug fix: When using Dynamic Data Pull (either DDP Custom or DDP on FHIR) and the MRN field is being used as the Secondary Unique Field in the project, then if an MRN is entered on a form and the "Duplicate value!" error message popup is displayed, it would mistakenly not be possible to close the popup, thus causing the user to have to reload the page. (Ticket #41879)

Release of REDCap 8.4.0 (Standard)

NEW FEATURES, BUG FIXES, & OTHER CHANGES:

- **New feature: Smart Variables**

- o Smart Variables are dynamic variables that can be used in calculated fields, conditional/branching logic, and piping. Similar to using project variable names inside square brackets - e.g., [heart_rate], Smart Variables are also represented inside brackets - e.g., [user-name], [survey-link], [previous-event-name][weight], or [heart_rate][previous-instance]. But instead of pointing to data fields, Smart Variables are context-aware and thus adapt to the current situation. Some can be used with field variables or other Smart Variables, and some are meant to be used as stand-alone. There are many possibilities.
  - o 35 Smart Variables are available. They can reference things with regard to users, records, forms, surveys, events/arms, or repeating instances. Documentation and examples for using Smart Variables are included on the Project Setup page, Online Designer, and other places throughout REDCap in a popup and alternatively as a standalone page.
  - o Note: While Smart Variables can be used for filters in reports and for filters for Custom Record Status Dashboards, they are not yet able to be utilized in Data Quality rule logic.

- **Improvement: SQL fields can utilize Smart Variables**
  - o Utilizing Smart Variables in SQL fields can be very powerful because they allow the query to be truly dynamic and change from context to context or record to record, rather than it always being a static query that gets executed against the database.
  - o Note: When using Smart Variables inside the query of an SQL field, you do NOT need to wrap the Smart Variable in quotes or apostrophes because the Smart Variable itself will be replaced with a value already wrapped in single quotes. Also, the value of the Smart Variable will be SQL-escaped when placed inside the query so that no user can inject values to manipulate the query. This has no effect on how one constructs the query, but for security purposes it is good to know that this is being done.

- **Improvement: Custom Record Labels now use proper piping syntax and can also utilize Smart Variables.**
  - o Because Custom Record Labels existed long before the concept of piping was created in REDCap, they did not adhere to typical piping concepts – e.g., they could not use prepended event names; they would display the raw value of a multiple choice field whereas piping would instead display the label of a multiple choice field. There also used to be certain limitations Custom Record Labels, in which they could only use data from fields on the very first event (of the current arm). Now that Custom Record Labels can be used like regular piping, they can target fields on any event in a project, and they can also utilize Smart Variables.
  - o Note: Any longitudinal projects existing before the upgrade that currently use Custom Record Labels will automatically have all fields in the Custom Record Label prepended with the [first-event-name] Smart Variable in order to maintain the existing behavior from previous versions that could only pull data from the first event of the current arm. So prepending [first-event-name] allows existing longitudinal projects to maintain the way they worked prior to the upgrade to this REDCap version.

- **Improvement/change: New method for composing survey invitation text using Smart Variables for survey link**
  - When composing a survey invitation, the standard text and survey link are no longer automatically appended to the survey invitation text at the time the email is sent. Instead, users must now specify all the entirety of the text of the email (including the stock text and survey link that used to be appended automatically, if they wish) and therefore must supply [survey-url] and/or [survey-link] in the text if they wish to provide the participant with a link to the survey.
  - If the user forgets to enter the survey URL Smart Variable in the text, REDCap will automatically suggest to them that they should.
  - If using the Twilio telephony module for sending invitations, the standard instructional text will still be appended in the SMS message as in previous versions EXCEPT for the "Email invitation" and "SMS invitation (contains survey link)" invitation types, which require [survey-url] and/or [survey-link] in the SMS text in order for the participant to receive a survey link.
  - Note: All survey invitations that were scheduled prior to this upgrade will still have the standard text and survey link appended to their survey text. Additionally, during the upgrade to this version, all saved configurations for Automated Survey Invitations (ASIs) will have the standard text and survey link automatically appended to the saved ASI email text, thus allowing the ASI behavior to remain exactly the same after the upgrade and allowing it to be backward compatible.

- **New feature: New syntax for referencing fields on repeating instances in piping, logic, and calculations**
  - Fields that exist on a repeating instrument or on a repeating event can be referenced using a new syntax (note: repeating events and instruments are used the exact same way). This is done by appending the "repeat instance" number to the field inside square brackets – e.g., [weight][2], which points to repeating instance #2 for the field "weight".
  - Please note the distinction that unique event names should be *__prepended__* to variables whereas repeating instance numbers must be *__appended__* to them. For example, if the field "weight" exists on a form in the event "Visit Data" in a longitudinal project, you might reference instance #2 for that field on that specific event with the following: [visit_data_arm_1][weight][2].
  - Smart Variables can be used in place of the repeating instance number, in which there are 5 instance-related Smart Variables: [previous-instance], [next-instance], [current-instance], [first-instance], and [last-instance]. For example, if you wish to use @DEFAULT action tage to carry over data from the previous instance of a repeating instrument, it might be set up as follows: @DEFAULT="[weight][previous-instance]".

- **Improvement: Piping can now be used for checkbox fields**
  - Piping from Checkbox fields is slightly different than with other field types because checkboxes allow for multiple saved values. There are options to display a list of checked choices, unchecked choices, or a specific choice.

- ▪ [my_checkbox:checked] - Appending ':checked' will display a comma-delimited list of choice labels that have been checked - e.g., 'Sunday, Tuesday, Thursday'. Note: If neither ':checked' nor ':unchecked' is appended to the variable, then it will default to ':checked'.
- ▪ [my_checkbox:unchecked] - Appending ':unchecked' will display a comma-delimited list of choice labels that have NOT been checked - e.g., 'Monday, Wednesday, Friday, Saturday'.
- ▪ [my_checkbox(code)] - If a coded value of the checkbox is included inside parentheses after the variable name - e.g., [my_checkbox:(2)] - then it will output the word 'Checked' or 'Unchecked' regarding whether or not that specific choice has been checked off.
- o Please note that while the checkbox piping options listed above will return the text labels, you may also append ':value' to the variable to return the raw value instead of the label. For example, [my_checkbox:checked:value] and [my_checkbox:unchecked:value] might return '1, 3, 5' and '2, 4, 6, 7', respectively, and [my_checkbox(2):value] will return 1 or 0 if checked or not checked, respectively.

- **Improvement:** Multiple choice fields can now have their raw value (as opposed to their choice label) piped by appending ":value" to the variable name – e.g., [my_radio_field:value]. Note: This can also be used for SQL Fields to display the raw value of the SQL Field drop-down.

- **Improvement:** Multiple choice fields can now have their raw value (as opposed to their choice label) piped inside an @DEFAULT action tag by appending ":value" to the variable name – e.g., @DEFAULT="[my_radio_field:value]".

- **Minor security fixes:** Some Cross-Site Scripting (XSS) vulnerabilities were found on various pages in which a malicious user could potentially exploit them by manipulating the query string or POST parameters of particular HTTP requests. Part of this batch of fixes includes a change in the REDCap API's "content-type" HTTP header for CSV exports from "text/html" to "text/csv" as an extra preventative measure to protect against XSS.

- **Major bug fix:** On some extremely rare occasions when loading a public survey, it might mistakenly display the data from a previous response rather than displaying the page with all fields blank.

- Change/improvement: If a REDCap installation is using two-factor authentication and has the Google Authenticator option enabled, then when new users initially verify their email address when first logging in to REDCap, it will now display the instructions for setting up the Google Authenticator app on that page after the email verification is successful. This will be necessary for installations that are utilizing Google Authenticator as the only two-factor option and also are not using Table-based authentication. (Note: This functionality does not apply to installations using Table-based authentication since that does not require email verification.)

- Bug fix: The "expand" link would mistakenly not work for the "Custom text to display at the top of the Help & FAQ page" textbox field on the General Configuration page in the Control Center.

- Bug fix: When deleting a repeating event instance on the Record Home page, it might mistakenly delete all files uploaded to any File Upload fields on other repeating instances of that event. (Ticket #37988)

- Various fixes and updates for External Modules framework

- Bug fix: When viewing the Survey Invitation Log in a project using the Twilio telephony services for surveys, it would mistakenly display the "Record" and "Participant Phone" headers for the wrong columns in the table.

- Bug fix: When using the REDCap Mobile App for a project that contains Descriptive fields that have inline images, if the file storage setting has been set to "WebDAV" on the File Upload Settings page in the Control Center, the images would mistakenly not get synced to the mobile app correctly.

- Bug fix: The action tags @NONEOFTHEABOVE and @MAXCHECKED would not work well together and would cause @NONEOFTHEABOVE to malfunction when using both tags on a single checkbox field. (Ticket #38119)

- Bug fix: When using a custom Data Quality rule to find a field with a blank value, in which the field exists on a repeating instrument, it would not always return the correct results. (Ticket #37067)

- Bug fix: When using the Google Authenticator app for two-factor authentication and an administrator clicks the "Send instructions via email" for 2-step login on the Browse Users page, it would mistakenly try to embed the QR code image in the email sent. But if the user was not currently logged into REDCap, then it would mistakenly display a broken image in the email contents instead.

- Various fixes and updates for External Modules framework

- Bug fix: The documentation for action tags @TODAY and @NOW mistakenly state that a field using either action tag would be disabled and not editable, which is no longer true but used to be true in older versions. (Ticket #32537)

- Bug fix: When uploading an instrument zip file in the Online Designer, it would mistakenly truncate the form name to 50 characters in length when instead it should be truncating it to 64 characters if the form name was longer than that.

- Bug fix: When using the PDF Auto-Archiver for a survey, if the project has all its data erased via the "Erase all data" button on the Other Functionality page or if the project is moved to production while opting to delete all records, then it mistakenly would not delete all the archived PDF files in the File Repository. (Ticket #38660)

- Bug fix: When clicking the "exclude" or "remove exclusion" link in the discrepancy results in the Data Quality module when using a non-English language for the text of that project, it would mistakenly only show the text in English right after clicking those links. It should instead display them in the project language. (Ticket #38408)

- Bug fix: If using an SSL database connection for MySQL, plugins and some external modules pages would mistakenly return an error and not load. After upgrading to this version, an administrator will need to download the zip file containing outdated non-versioned files on the Configuration Check page, and then follow the instructions there. (Ticket #37763)

- Change/improvement: Non-versioned files (e.g., redcap/index.php, redcap/surveys/index.php) now make a database connection via redcap_connect.php to determine the current REDCap version (when appropriate). In previous versions, those files would naively assume the highest numbered version that was inferred from the REDCap version directory name, which would sometimes lead to erroneous conclusions about the correct version number.

- Bug fix: On very rare occasions, creating a new user role in a project might mistakenly result in displaying an error to the user that states that an email could not be sent to the user, which does not make sense because there is no user in this context. This was supposedly fixed in the previous version but was not. (Ticket #37465)

- Bug fix: When deleting a form's data using the "Delete data for THIS FORM only" button at the bottom of a data entry page, if it is a repeating instrument, it would mistakenly fail to mention that this action would only delete the current repeating instance of the form, not all repeating instances of that form.

- Bug fix: The SQL mapping file for installing the DDP Custom demo web service might cause an SQL error and not execute successfully if DDP mapping has already been performed for any DDP Custom project in the system.

- Bug fix: The Dynamic Data Pull (DDP Custom or DDP on FHIR) module was mistakenly unable to utilize repeating instruments or repeating events for capturing temporal data.

- Change/improvement: Added stats for e-Consent Framework usage on the Control Center's System Statistics page.

- Change: Added extra note at the bottom of the REDCap Messenger informational page that states that entering PHI or PII into a Messenger's conversation title is highly discouraged because conversation titles are much more visible than conversation text.

- Change/improvement: When using the Copy Project button on the Other Functionality page, it now copies the Record Locking Customization settings for the project.

- Change/improvement: When using the Copy Project button on the Other Functionality page, it now displays an option to the user to copy all custom record status dashboards in the project.

- Bug fix: When using AAF authentication, the cross-site request forgery (CSRF) protection would not work properly.

- Bug fix: When an unsuccessful login attempt occurs in REDCap, it now only logs the username value entered if the value is a valid REDCap user's username. If not, it instead logs it as "[not_valid_username]" in the redcap_log_view database table. This fixes a potential security hole in which some users might mistakenly enter their password in the username login field, in which it would log their password in plain text in the redcap_log_view database table and thus could be viewable to anyone with direct access to the backend database.

- Bug fix: When adding a new user in REDCap (in several places throughout the application), if user attempts to create a username containing an ampersand, it would not allow it even though the error message says that ampersands are allowed. This error message text is incorrect because ampersands are not allowed in REDCap usernames. (Ticket #39267)

- Bug fix: When running Data Quality rule H, it might mistakenly not return some discrepancies in very specific cases. This would most often occur when the calculated value has a decimal while the saved value does not contain a decimal (and vice versa). (Ticket #38488)

- Bug fix: When using a Live Filter on the "Stats & Charts" page of a report, in which no results should be displayed for the selected Live Filter, it would mistakenly display all records in the charts and stats tables on the page. (Ticket #39349)

- Bug fix: When using conditional logic, report filters, etc., in which certain text is used inside double quotes or single quotes (i.e., text that is used internally by REDCap as special processing tokens), it would sometimes mistakenly return no results instead of the desired results. (Ticket #32295, #39418)

- Change: New DDP on FHIR setup instructions for Cerner were added to the DDP on FHIR zip file.

- Change: The BioPortal biomedical ontology web service is now called through a secure method (SSL/HTTPS) by REDCap. This will not affect how the ontology field search works, but provides

more security by encrypting all the requests being sent from REDCap to the data.bioontology.org website. (Ticket #39613)

- Bug fix: Inside the red box that appears at the top of the data entry form when viewing a survey response, it would mistakenly report that other users contributed to the survey response, even though those users may have entered data on another instrument for that record. This issue cannot be fixed for existing responses, but the issue will no longer occur for any new responses created. Additionally, the text that denotes the users that have contributed after the survey was completed would be incorrect if users may have entered data on another instrument for that record, but this issue (unlike the other one described above) will be fixed retroactively for existing responses and for new responses. Also, both of these issues would mistakenly include calc fields when determining contributors; however, calc fields will no longer be considered because they can be triggered from data being entered elsewhere for a record. (Ticket #38545)

- Bug fix: When exporting data to a stats package for a project that contains repeating instruments, the choices listed for the field "redcap_repeat_instrument" in the stats package's syntax file would mistakenly have the instrument label repeated multiple times for that field if that instrument were set to be repeating on multiple events in the project. (Ticket #38529)

- Bug fix: When viewing the Public Survey Link page of a project containing multiple arms, if the first data collection instrument is not designated for the first event of the current arm, it would mistakenly display the public survey link of another arm (typically the first arm). It now displays a warning on the page to inform the user to fix this issue by designating the first instrument for the first event of that arm. (Ticket #39647)

Release of REDCap 8.3.0 (Standard)

NEW FEATURES, BUG FIXES & OTHER CHANGES:

- **New features: PDF Auto-Archiver & e-Consent Framework**
  - **PDF Auto-Archiver**
    - Upon survey completion, a compact PDF copy of the survey response can be automatically stored in the project's File Repository, from which the archived PDFs can be downloaded at any time.
    - This setting is located on the Survey Settings page in the Online Designer, thus it can be enabled for any given survey in a project.
  - **e-Consent Framework**
    - This feature, which works together with the PDF Auto-Archiver, provides functionality for user's to implement electronic consent (e-Consent) using a survey as the consent form, such as for capturing the consent of a research study participant.

- The e-Consent Framework option adds two things to the typical survey-taking process. 1) Before a participant completes the survey, an extra certification page is added to end of the survey that displays an in-line PDF copy of their survey responses in which they will be asked to confirm that all information in the document is correct. Once they confirm all is correct, the survey will then be marked as complete. The survey will not be considered complete until they fulfill the certification step. 2) Upon completion of the survey, a static copy of their responses in the form of a consent-specific PDF will be stored in the project's File Repository. The consent-specific PDF will have the values of the e-Consent Framework Options inserted at the bottom of each page in the PDF. These values (i.e., name, date of birth, etc.) are added to the PDF as extra documentation of the identity of the person who is consenting.
- A participant's IP Address is also recorded and displayed in the File Repository after the e-Consent process, but this option to collect the IP address can also be optionally disabled at the system level (if desired) on the Modules/Services Configuration page in the Control Center.
- The e-Consent Framework feature can be disabled at the system level (if desired) on the Modules/Services Configuration page in the Control Center.
- In addition to storing the e-Consent PDFs in a project's File Repository, you may also optionally enable the External Storage option (requires PHP 5.6.0+), which will automatically store the PDFs on a separate file server (using WebDAV or SFTP). This external file server may serve as a giant "vault" for your entire REDCap installation's consent forms. This is a system-level setting that can be enabled on the File Upload Settings page in the Control Center.

- **New feature: New method REDCap::getValidFieldsByEvents** for plugins, hooks, and modules. This method returns an array of field names belonging to instruments that are designated for specified events in a longitudinal project. The method also contains the option to include or exclude the project's Record ID field.

- **Improvement:** The Survey Invitation Log now contains an extra column on the right-hand side to allow users to delete many scheduled invitations at once (rather than having to delete them one at a time).

- **Improvement:** Checkbox fields may now be utilized in the DDP Custom or DDP on FHIR modules when importing data from external sources/EHRs. This will be useful because certain systems might record some non-temporal fields (e.g., race) as multi-value fields. Note: If multiple values are detected from the DDP source system/EHR for a field that is neither a temporal field nor a checkbox field, it will display a red warning message in the DDP adjudication popup informing the user that multiple values have been detected and that only one value can be imported unless they convert the field into a checkbox field.

- **Improvement:** The Configuration Check page in the Control Center now checks to see if the REDCap server can communicate with all the various third party websites/services that are used within REDCAP. These include Twilio, PROMIS, BioPoral, Bit.ly, and IS.GD.

- Bug fix: When deleting an individual survey invitation or modifying an invitation's send time on the Survey Invitation Log, the logging would mistakenly state that "SYSTEM" performed the action rather than the user's username.

- Various fixes and updates for External Modules framework

- Bug fix: On the Field Comment Log page in a project, if a user is using the Internet Explorer web browser, clicking the "Apply filters" button would mistakenly cause it mistakenly to search for the keywords "Keyword" and "search" even when the "Keyword search" text box has been left blank. This would often cause it to return no results, which is confusing. (Ticket #36266)

- Bug fix: Projects that use repeating events or repeating instruments will now *always* output the "redcap_repeat_instrument" and "redcap_repeat_instance" fields in a report or data export, as well as the output of REDCap::getData, regardless of whether the report/export contains any repeating data or not. In previous versions, it would mistakenly only output those fields if any data in the report/export was repeating. This means that the number of columns would vary unpredictably based on the filters applied to the report/export (or based on the parameters passed to REDCap::getData), which is confusing and inconsistent with how reports/exports typically behave. (Ticket #36263)

- Bug fix: When a record is deleted in a project (either via the user interface or via API), the logging page would mistakenly display the event name for the logged event, which is confusing because the record as a whole was deleted, not just for a specific event. It now no longer displays the event name for the logged event, and if the project contains multiple arms, it will instead display the number and name of the arm from which the record was deleted. (Ticket #36358)

- Bug fix: When viewing the data entry form of a repeating instrument, in which the "Current instance" drop-down list is displayed at the top of the page, if a user clicks the "+" button inside the drop-down rather than clicking the "Add new" text, it would mistakenly take the user to an incorrect page.

- Bug fix: When viewing/exporting a report or using the REDCap::getData() method in a longitudinal project with multiple arms, in which the user is exporting data from an arm that currently has no records in it (i.e., the data set being returned should be empty because there is no data from that arm to return), then it would mistakenly output a list of all records from other arms but with blank/default values. (Ticket #36470)

- Bug fix: In a longitudinal project with multiple arms, in which a record exists on more than one arm, if a user clicks the "Lock all instruments across all events" on the Record Home page on a certain arm, it would mistakenly lock all the instruments/events on other arms in addition to the current arm. It should only lock the instruments on the current arm. Note: The unlocking process does not appear to be affected by this issue.

- Bug fix: When using DDP Custom or DDP on FHIR and adjudicating temporal data for several different events, if a field value is adjudicated in one event, it might mistakenly get marked as adjudicated for that same field in other events. This causes the field to be hidden in the DDP adjudication popup when viewing the other events, so it makes it appear as if it has already been adjudicated when it has not.

- Bug fix: On certain occasions, the Scheduling module might mistakenly crash due to a fatal PHP error when attempting to generate a schedule for a record. This appears to only occur for PHP 5.3. (Ticket #36592)

Release of REDCap 8.2.0 (Standard)

NEW FEATURES, BUG FIXES, & OTHER CHANGES:

- **Medium security fixes:** Many Cross-Site Scripting (XSS) vulnerabilities were found in various pages in which a malicious user could potentially exploit them by manipulating the query string or POST parameters of an HTTP request.
- **Minor security fixes:** Some Cross-Site Scripting (XSS) vulnerabilities were found on the "Create users (bulk upload)" section of the "Add Users" page in the Control Center, in which a malicious user could potentially exploit them by manipulating the contents of the CSV file that an administrator uploads on that page to create new Table-based users.
- **New feature: Sponsor Dashboard**
  - The Sponsor Dashboard can be utilized by users who have been designated as a sponsor for another REDCap user. In many cases a sponsor is a secondary contact person for the user or someone that helps manage the account (or perhaps they requested that the account be created). The Sponsor Dashboard allows sponsors to manage their sponsored users by viewing various information about them, such as username, name, expiration, suspended status, and some general activity. The dashboard contains various functions to allow sponsors to make requests to REDCap administrators to help manage their sponsored users by performing the following actions: 1) resetting passwords (Table-based authentication only), 2) Setting/expiring a user's account expiration, 3) suspending users, and 4) unsuspending users.
  - A link to the dashboard will be displayed at the top of the My Projects page for any users that are a sponsor.

- If an institution decides not to allow sponsors to use the Sponsor Dashboard, it can be disabled on the User Settings page in the Control Center.
- Note: The User Settings page in the Control Center also contains a setting "Default amount to set/extend user expiration times", which sets the default time (in days) for setting or extending a user's account expiration time when requested by a sponsor. In the specific case where the expiration time is being set (not extended), the administrator has the ability to modify the exact expiration time during the request approval process.

- **Improvement: Major improvements to the "Browse Users" page** in the Control Center – Borrowing from the functionality of the new Sponsor Dashboard, administrators may now perform the following actions on many users at once: 1) resetting passwords (Table-based authentication only), 2) Setting/expiring a user's account expiration, 3) suspending users, and 4) unsuspending users.

- **New API method: Export Repeating Instruments and Events** - This method allows you to export a list of the repeated instruments and repeating events for a project. This includes their unique instrument name as seen in the second column of the Data Dictionary, as well as each repeating instrument's corresponding custom repeating instrument label. For longitudinal projects, the unique event name is also returned for each repeating instrument. Additionally, repeating events are returned as separate items, in which the instrument name will be blank/null to indicate that it is a repeating event (rather than a repeating instrument).

- **Improvement: New "compact" option for PDFs** of forms/surveys in which a compact-formatted PDF is produced that excludes fields that have no data saved and excludes unselected multiple choice options, thus producing a smaller PDF file. (Note: Section headers and descriptive fields will still be included.) On all pages that offer a PDF download option, there is now an extra "compact" option. The REDCap::getPDF() developer method and the "Export PDF file" API method both have the compact option added as a new parameter that can be passed to the method.

- **Improvement:** Minor aesthetic improvements in the display of PDFs of forms/surveys, such as divider lines between questions and gray background color for section headers.

- **Change/improvement:** When adding/editing Automated Survey Invitations, the "Send after lapse of time" value for "days" may now be 4 digits in length (specifically up to 7300 days = 20 years), whereas previous versions limited the days unit to 3 digits. This change allows for a much longer wait time before sending the scheduled invitations. (Ticket #3082)

- Bug fix: If attempting to enable the Twilio SMS and Voice Call services on a REDCap server that is not publicly available to the web (i.e., on a private network or behind a firewall), it would mistakenly allow the Twilio module to be enabled in a project even if the Twilio Request Inspector had not been disabled for the Twilio account being used.

- Bug fix: If a survey is using "Save & Return Later" with the option "Allow respondents to return without needing a return code" enabled, then if a participant takes a survey using a public survey link and clicks the "Save & Return Later" button at the bottom of the survey, REDCap would mistakenly email them the public survey link rather than their private survey link which would normally allow them to return to their survey response to begin where they left off. The public survey link that gets emailed to them would mistakenly not allow them to continue their survey response.

- Bug fix: If text data that contains line breaks/carriage returns is piped into another field value via piping inside an @DEFAULT action tag, the piped text would mistakenly contain HTML break tags (e.g., <br>) rather than proper line breaks/carriage returns.

- Bug fix: If a project's "Character encoding for exported files" option (on the Edit A Project' Settings page) is set to "Chinese (UTF-8)", then the webpage would crash with a fatal PHP error whenever a user attempted to download a PDF of one or more data entry forms. (Ticket #32892)

- Bug fix: When piping a radio button field into another field's label on the same instrument, if the piped field is modified on that page, thus instantly piping the new selected value's choice label, the choice label being piped would mistakenly be non-bolded text, even though the rest of the field label remains as bolded text.

- Bug fix: For a project that utilizes the randomization module, if any of the strata fields being used in the randomization have field labels or field notes into which data is being piped, then the randomization dialog popup that displays these strata fields would mistakenly not have the data piped into their labels/notes. (Ticket #33282)

- Bug fix: When a project contains repeating instruments, and a report is created that contains fields from a repeating instrument, the "Stats & Charts" view of that report might mistakenly display an incorrect number of missing values for fields on a repeating instrument. (Ticket #32078)

- Bug fix: On a data entry form or survey that utilizes a calc field or certain action tags anywhere on the page, a random blank text field might mistakenly have a red sidebar appear on the input field for no reason.

- Bug fix: If an External Module is utilizing the API endpoint URL, and a new REDCap version has been placed on the web server but the upgrade has not been completed yet, then the API endpoint would mistakenly redirect to the wrong place. (Ticket #33520)

- Bug fix: For surveys that have no questions and have been set to "One section per page (multiple pages)" in their survey settings, it would mistakenly display the Form Status field on the survey page. (Ticket #33467)

- Bug fix: In a production project in draft mode when adding a matrix of fields in the Online Designer and assigning it a matrix group name that already exists, it mistakenly allows the user to add that matrix group name, but then subsequently displays an error message when the whole matrix setup is saved. (Ticket #33661)

- Bug fix: When using the Data Search feature on the "Add/Edit Records" page, the "Searching..." text/spinner would not accurately reflect the search request time but would mistakenly disappear on some long searches, thus making it appear that the search has completed when it actually has not. (Ticket #7805)

- Various fixes for External Modules framework

- The Help & FAQ page content was updated

- Bug fix: When using the @TODAY or @NOW action tag for a field on a survey instrument, although the action tags will correctly insert the date/timestamp when the instrument is opened as a survey page, it would mistakenly not do this on the data entry form. Note: This only occurs on an instrument that has been enabled as a survey and is being opened as a data entry form when the field has no value. (Ticket #33609)

- Bug fix: The "simultaneous users" check that prevents two different users from viewing the same record/instrument/event in the same project would not successfully stop a user from viewing the data entry form if the user already on the form performs one of the following actions: 1) upload a file onto a File Upload field, 2) download a file, 3) delete a file, or enter a value into the Secondary Unique Field (if enabled).

- Bug fix: In certain rare cases, if a respondent clicks the download link for a File Upload field on a survey page, it might mistakenly display an error page rather than downloading the file.
- Bug fix: When deleting a message in REDCap Messenger, in which a non-English language is being used for the system, it mistakenly would tell the user to type the translated version of the word "delete" for the local language; however it was instead expecting the user to literally type the English word "delete", not the translation of the word. For technical reasons, the English word must be typed, so the instructions have been changed to clarify this. (Ticket #34174)