REDCap Flex Upgrade Changelog – October 18, 2021
New Features

- **New feature: Project Dashboards**
  - **INTRO:** Project Dashboards are pages with dynamic content that can be added to a project. They can utilize special Smart Variables called Smart Functions, Smart Tables, and Smart Charts (described below) that can perform aggregate mathematical functions, display tables of descriptive statistics, and render various types of charts, respectively. User access privileges are customizable for each dashboard, and anyone with Project Design privileges can create and edit them. A Wizard is provided on the Project Dashboard creation page to help users easily construct the syntax for Smart Functions, Smart Tables, or Smart Charts, and a basic list of helpful examples is also included. Example dashboard: https://redcap.link/dash1
  - **Setting project dashboards as "public"**
    - If enabled at the system-level (described in detail below), any project dashboard can be enabled as "public", which means it can be accessed at a unique URL that does not require any authentication. Making a dashboard public is useful if you wish for people to view it without having to be REDCap users or log into REDCap. Public dashboards are simply standalone pages that can be viewed by anyone with a link to them.
    - Users can opt to create a custom/short url (via the https://redcap.link service) for any project dashboard that is enabled as "public".
    - **System-level setting to allow/disallow public dashboards** (on the User Settings page in the Control Center) - By default, normal users will be able to set any project dashboard as public. If you do not want users to do this or even know about this feature, you can completely disable it on the User Settings page. Alternatively, it can be set to "Allow public dashboards with admin approval only". If set to allow public dashboards after approval by an admin, the admin will receive the request from the user via the To-Do List page (and via email, if the email notification setting is enabled on the To-Do List page), and after the admin approves the request, the user will receive an email regarding the response to their request.
  - **Setting to control data privacy on public dashboards and other public pages**
    - The User Settings page in the Control Center has a setting to define the "Minimum number of data points required to display data for any Smart Charts, Smart Tables, and Smart Functions on a *public* project dashboard, survey queue, or survey page". **By default, it is set to a value of "11".** While only aggregate data is displayed in Smart Charts, Smart Tables, and Smart Functions, if any of these utilize very few data values, it might pose a threat to an individual's data privacy if these are being displayed on *public* dashboards and other public pages (i.e., where authentication is not used).
    - If someone is viewing a public page that has Smart Charts, Smart Tables, and Smart Functions that utilize data that does not meet the minimum data point requirement, instead of displaying the chart/table/number on the page, it will instead display a notice saying "[INSUFFICIENT AMOUNT OF DATA FOR DISPLAY]" with a pop-up note with details about the minimum data requirements.

        - **Project-level override:** While this behavior is controlled by a system-level setting, the system-level setting can be modified by an administrator via a project-level override for any given project on the "Edit A Project's Settings" page.
        - Note: This setting does not get used when viewing project dashboards inside a project (i.e., at a non-public URL).
    - **PDF export:** Each project dashboard can be exported as a one-page PDF file.
    - **Dashboard cache:** To prevent server performance degradation, each project dashboard will have its content cached (stored temporarily) automatically for up to 10 minutes at a time rather than generating its content in real time every time the dashboard is loaded. It will note at the top right corner of the dashboard page when the dashboard content was last cached. If a user is viewing the dashboard inside a project (i.e., not via a public dashboard link), they have the option at the top right to "Refresh" the dashboard at will, which will refresh/generate its content in real time. Note: The refresh option will only be displayed on the page when the dashboard content is at least 30-seconds old.
- **New feature: Smart Functions**
    - Smart Functions are aggregate mathematical functions that are utilized as Smart Variables. The following Smart Functions exist: [aggregate-min], [aggregate-max], [aggregate-mean], [aggregate-median], [aggregate-sum], [aggregate-count], [aggregate-stdev], and [aggregate-unique]. Each represents the mathematical functions minimum, maximum, mean/average, media, sum, count, standard deviation, and unique count, respectively. Each must have at least one field attached to it that follows a colon - e.g., [aggregate-mean:age]. Multiple fields may be used in each one, which will perform the function over all the data values of all the fields. By default, the functions will utilize all data values for all records in the project. To limit the data values being utilized to a subset of the total project data, see the Smart Variable documentation on how to apply filters, such as attached unique report names, DAGs, and other parameters
    - Note: When using [aggregate-count:record_id], in which "record_id" in this example represents whatever the variable of the Record ID field is, it performs a special count that does not literally count the number of data values but instead returns a count of the total number of records in the project. This is a quick way to display the total record count of the project.
    - Smart Functions can be used anywhere in a project where piping is allowed, and can even be used inside calculations, branching logic, and other conditional logic (report filters, alert conditions, etc.).
- **New feature: Smart Tables**
    - Smart Tables are tables displaying aggregate descriptive statistics in which the results of any or all of the following stats functions can be displayed for one or more fields: minimum, maximum, mean/average, media, sum, count, standard deviation, count of missing values, and count of unique values.
    - Smart Tables are represented with the Smart Variable [stats-table], which accepts as a parameter the variable names (comma delimited) of all the fields to be displayed as separate rows in the table. There is no limit to the number of fields that can be used. For example, [stats-table:field1,field2,field3].

- By default, all available columns will be displayed in the table and are as follows: Count, Missing, Unique, Min, Max, Mean, Median, StDev, Sum. To display only a subset of the columns, you may provide any of the following designations (comma-separated) that represent a specific column in the table: count, missing, unique, min, max, mean, median, stdev, sum. For example, [stats-table:field1,field2,field3:mean,max].
- By default, each stats table will have an "Export table (CSV)" link displayed immediately below it to allow users to download the table as a CSV file. But if users wish to hide the export link, they can simply attach ":no-export-link" to the Smart Variable, which will cause the link not to be displayed. For example, [stats-table:field1,field2,field3:no-export-link].
- Smart Tables can be used anywhere in a project where piping is allowed.

- **New feature: Smart Charts**
  - Smart Charts are various aggregate plots and charts utilized as different Smart Variables. The following plots are available for use: bar charts, pie charts, donut charts, scatter plots, and line charts. These are all represented by the following Smart Variables, respectively: [bar-chart], [pie-chart], [donut-chart], [scatter-plot], and [line-chart]. These Smart Variables accept one or more field names and also other optional parameters, as described below for each.
  - **Bar charts** - Displays a bar chart for a single multiple choice field. It can optionally perform color grouping if a second field (multiple choice only) is provided. The fields must be comma-separated. For example, [bar-chart:field,grouping-field:parameters]. Bar charts have optional parameters that can be applied to alter their appearance. By appending the parameter ":bar-stacked" when two fields are used, the bars in the chart will appear stacked on top of each other rather than side by side. By default, bar charts are displayed with their bars going horizontally, but by appending the parameter ":bar-vertical", the orientation will be changed to display vertically instead.
  - **Pie charts** - Displays a pie chart for a single multiple choice field. For example, [pie-chart:field:parameters].
  - **Donut charts** - Displays a donut chart for a single multiple choice field.Note: A donut chart is essentially the same as a pie chart but with the center removed. For example, [donut-chart:field:parameters].
  - **Scatter plots** - Displays a scatter plot of one number/date/datetime field for the x-axis and a second field (number field only) for the y-axis. (If a second field is not provided, a random value will be assigned for the y-axis.) It can optionally perform color grouping if a third field (multiple choice only) is provided. All fields must be comma-separated. For example, [scatter-plot:x-axis-field,y-axis-field,grouping-field:parameters].
  - **Line charts** - Displays a line chart of one number/date/datetime field for the x-axis and a second field (number field only) for the y-axis. It can optionally perform color grouping if a third field (multiple choice only) is provided. All fields must be comma-separated. Note: A line chart is essentially the same as a scatter plot except with dots connected with a line. For example, [line-chart:x-axis-field,y-axis-field,grouping-field:parameters].
  - **Color blindness accessibility:** Pie charts and donut charts have the ability for the user to enable color blindness accessibility, via a gray link displayed immediately below each chart, in which it overlays different patterns onto the colored pieces of the chart to make each color

more distinct for many types of color blindness. This option to enable color blindness accessibility is stored in a secure cookie on the user’s device and will be used to remember this choice anytime a pie/donut chart is displayed on any page for any REDCap project for that REDCap server.
  - The colors displayed in each chart/plot are preset and are not modifiable.
  - Smart Charts can be used anywhere in a project where piping is allowed *except* for inside the body of outgoing emails.
- **Optional parameters for Smart Functions, Smart Tables, and Smart Charts**
  - There exist various optional parameters that can be used with Smart Functions, Smart Tables, and Smart Charts to either filter the data used in them (e.g., via a unique report name) or to change their appearance (e.g., bar-vertical). See the descriptions for each below, which are all documented in the Smart Variables documentation.
  - **:R-XXXXXXXXXX Unique Report Name** - For Aggregate Functions, Charts, and Tables, filter the data being used by appending a Unique Report Name. Next to each report on the 'My Reports & Exports' page is its unique report name, which has 'R-' following by alphanumeric characters. By default, all Aggregate Functions, Charts, and Tables will use the values of all records in the project, but if a unique report name is appended to any of them, only data from that specific report will be used. Using a report as a surrogate to filter data is a very useful technique of performing complex filtering logic for Aggregate Functions, Charts, and Tables.
  - **:record-name "record-name"** - For Aggregate Functions, Charts, and Tables, filter the data being used to the *current record* by using the literal value 'record-name'. Note: This parameter will only work in a context where a single record is being viewed/accessed, such as on a survey page, data entry form, etc. This parameter can be used with any of the other parameters except unique report names.
  - **:event-name "event-name"** - For Aggregate Functions, Charts, and Tables, filter the data being used to the *current event* (longitudinal projects only) by using the literal value 'event-name'. Note: This parameter will only work in a context where a single record/event is being viewed/accessed, such as on a survey page, data entry form, etc. This parameter can be used with any of the other parameters except unique report names.
  - **:unique-event-names Unique Event Names** - For Aggregate Functions, Charts, and Tables, filter the data being used to specific events (longitudinal projects only) by providing an event's unique event name (found on the Define My Events page). You may use one or more unique event names (comma-separated). Note: This parameter can be used with any of the other parameters except unique report names.
  - **:user-dag-name "user-dag-name"** - For Aggregate Functions, Charts, and Tables, filter the data being used to the records assigned to the *current user's Data Access Group* by using the literal value 'user-dag-name'. Note: This parameter will only work in a context where an authenticated user belongs to a project and has been assigned to a DAG in the project (this excludes survey pages and public project dashboards). This parameter can be used with any of the other parameters except unique report names.
  - **:unique-dag-names Unique DAG Names** - For Aggregate Functions, Charts, and Tables, filter the data being used to the records assigned to specific Data Access Groups by

providing a DAG's unique group name (found on the Data Access Groups page). You may use one or more unique DAG names (comma-separated). Note: This parameter can be used with any of the other parameters except unique report names.
  - **:bar-vertical "bar-vertical"** - Display a bar chart with the bars going vertically instead of horizontally (the default) by using the literal value 'bar-vertical'. Note: This parameter can be used with any of the other parameters.
  - **:bar-stacked "bar-stacked"** - Only for bar charts using two fields, display the bar chart with the bars stacked on top of one another for each choice. Whereas the default view is that the bars of each field are displayed side by side to show the color grouping. To enable this, use the literal value 'bar-stacked'. Note: This parameter can be used with any of the other parameters.
  - **:no-export-link "bar-stacked"** - Only for bar charts using two fields, display the bar chart with the bars stacked on top of one another for each choice. Whereas the default view is that the bars of each field are displayed side by side to show the color grouping. To enable this, use the literal value 'bar-stacked'. Note: This parameter can be used with any of the other parameters.
- **NOTE: Using Smart Functions/Tables/Charts elsewhere in a project -** While project dashboards are an excellent place to use Smart Functions, Smart Tables, and Smart Charts, it is important to know that Smart Functions/Tables/Charts can actually be used *almost anywhere* in a project, such as on data entry forms, on survey pages, and in report instructions (to name a few). You can use Smart Functions/Tables/Charts anywhere that piping can be used. Click the green "Smart Variables" button on the Project Setup page to learn more about them. Note: The only place that Smart Charts cannot be used is inside the body of outgoing emails.
- **NOTE: Smart Functions/Tables/Charts do not yet work in the REDCap Mobile App;** however, it is planned that they eventually will (to a certain degree).
- **NOTE regarding permissions for Smart Functions/Tables/Charts:**
  - DAG permissions (i.e., filtering out records not assigned to the current user’s DAG) are **NOT applied by default** to Smart Charts/Tables/Functions but are only applied when the Smart Chart/Table/Function utilizes a unique report name as a parameter (thus mimicking the natural DAG-filtering behavior of reports themselves) OR when the Smart Chart/Table/Function utilizes the “user-dag-name” parameter. This means that if a user is assigned to a DAG and views a project dashboard with the Smart Chart [scatter-plot:weight], for example, the plot will display data for ALL records in the project and not just the user’s DAG. To limit the plot to just data in the user’s DAG, it could be changed to [scatter-plot:weight:user-dag-name] in this case.
  - Smart Charts/Tables/Functions that utilize a unique report name as a parameter for data filtering purposes will still function and display normally even if the user does not have explicit access to view that specific report referenced as a parameter.
- **New feature: CSV Delimiter as a user-level preference** - The My Profile page now has a new user preference to allow a user to set their own preferred CSV delimiter (e.g., comma, semi-colon) that will be used as the delimiter character in all CSV file downloads throughout REDCap, such as data dictionary import/export, event import/export, user rights import/export, etc. This setting is not used by data imports and exports because those already have a way to specify the

CSV delimiter manually. The system-level default value for this user preference can be set on the User Settings page in the Control Center, in which all new users created afterward will have their user-level preference set with this system-level default value. To modify all existing users' preference after upgrading (if your users would not want a comma delimiter), it will require running an "update" query in the database, such as this: UPDATE redcap_user_information SET `csv_delimiter` = ';' ;

- **New feature: More clinical data available via FHIR R4 endpoints for CDIS** - The CDIS services Clinical Data Pull and Clinical Data Mart can now utilize version 4 (called "R4") of the FHIR web services from their local EHR system. The new R4 endpoints include the existing data that could be pulled in earlier versions as well as the following: Adverse Events, Core Characteristics (Observation), Encounters, and Immunizations. Note that "Adverse events" are only available for "research" projects where an IRB number is specified, in which the project's IRB number corresponds to the "Study ID" value from the EHR interface for a particular study (which is often the same as the study's IRB number).
- **New feature: Fields that are "sql" field type (Dynamic Query - SQL field) now work in the REDCap Mobile App.** In previous versions, they were not functional at all in the mobile app. Now when a project is loaded into the mobile app, any "sql" fields will be converted into static drop-down fields in the app. If new choices get dynamically added to the sql field on the server afterward, the project will need to be loaded again in the mobile app to obtain those choices for the sql field. (Ticket #107409)
- **New feature: Import/export alerts via CSV file on Alerts & Notifications page** - Users may export and import alerts to the same project or another project using a CSV file. If updating an existing alert, the unique alert ID must be included in the CSV file to identify the alert that the user wishes to modify. If the unique alert ID is left blank in the CSV file being uploaded, it is assumed that the user wishes to create a new alert.
- **New feature: Reorder alerts on Alerts & Notifications page** - In the options menu for any given alert, a user can select an alert to be moved to another position on the Alerts & Notifications page. When this is done, it notifies the user that moving the alert will in most cases cause the alert numbers to be renumbered for many existing alerts (since they are numbered based on their order). However, their alert title and unique alert ID will not change during this process.
- **New feature: Ability to make reports accessible at a public link**
    - Summary: When editing a report, users can now set a report as "public" and can obtain a public link to the report if they have User Rights privileges in the project. When a report is public, this means that all data in the report will be fully accessible (with no authentication required) to anyone with the public link to the report.
    - In order to make a report public, all the following must be true:
        - The user must have User Rights privileges in the project or be a REDCap administrator.
        - The report cannot have any Identifier fields in it.
        - The user is required to view the report during their current REDCap session.
        - The user must agree to and check off the following statements: 1) I understand that making this report "public" means that all data in the report

will be fully accessible to anyone with the public link to the report, and 2) I understand that I am responsible if any private, sensitive, or identifying data in the report is exposed to persons who should not have access to such data.

  - The behavior of how reports are made public can be controlled at the system level near the bottom of the User Settings page in the Control Center using the setting “Allow reports to be made 'public'?”. Admins may completely disallow reports to be made public (although admins will still have this ability to do so). But if enabled, they may choose to allow users to make reports public on their own or enable the To-Do List approval process by which an admin will need to approve their request to make a given report public (similar to the same system level approval process for Project Dashboards being made public).
  - Once a report has been made public, its configuration cannot be modified while it is public (users cannot add new fields, modify filter logic, etc.). In order to modify a public report, the user will need to make it no longer public, then make their changes, and then make it public again.
- **New Smart Variables**
  - [event-id] - (longitudinal only) The event id number of the current event.
  - [survey-access-code:instrument] - The Survey Access Code of the specified survey for a given record/event/instance. The format must be [survey-access-code] or [survey-access-code:instrument], in which 'instrument' is the unique form name of the desired instrument. This can be used simply as [survey-access-code] inside the content of a survey invitation, in which 'instrument' is assumed to be the current survey instrument.
  - [survey-return-code:instrument] - The Survey Return Code of the specified survey for a given record/event/instance in order to allow a participant to return to a completed or partially completed survey response when using the 'Save & Return Later' survey feature. The format must be [survey-return-code] or [survey-return-code:instrument], in which 'instrument' is the unique form name of the desired instrument. This can be used simply as [survey-return-code] inside the content of a survey invitation, in which 'instrument' is assumed to be the current survey instrument.
  - [user-role-id] - The Role ID of the user role to which the current user is assigned (blank if not assigned to any user role). This value is auto-generated for each user role. NOTE: This value is not just unique for all roles within the project but is also unique across all REDCap projects. Thus, if the project and its user roles are copied, the Role IDs of the user roles in the resulting copy will be different from the ones in the original project.
  - [user-role-name] - The unique role name of the user role to which the current user is assigned (blank if not assigned to any user role). This value is auto-generated for each user role. NOTE: This value is only unique for roles within the project. Thus, if the project and its roles are copied, the new project will retain the same unique role names, which allows you to utilize the unique role names in conditional logic, calculations, branching logic, etc. that will not break when the project is copied.

    - [user-role-label] - The name/label of the user role to which the current user is assigned (blank if not assigned to any user role). This value is defined by the user that creates the user role.
- **New Action Tag: @MAXCHOICE-SURVEY-COMPLETE** - Similar to @MAXCHOICE but only counts choices on completed survey responses (does not count data entered as data entry only or on partial responses). Causes one or more specified choices to be disabled (i.e., displayed but not usable) for a checkbox, radio button, or drop-down field after a specified amount of records have been saved with that choice for completed survey responses only.
- **New feature: Tableau Data Export**- Extract all records into Tableau via the REDCap API.
    - This feature enables Tableau (v10.0+) users to connect Tableau to a REDCap project using an API token. Project data can be exported on demand and be available for use within Tableau to produce summaries and visualizations. The Other Export Option page in any given project has instructions to export project data into Tableau.
    - NOTICE: It is required for a user to have an API token generated for the project in order to use this feature.
- **New feature: MailGun 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 MailGun, which is a third-party paid service that can send emails on behalf of REDCap.
    - The option can be configured on the General Configuration page in the Control Center. You merely have to provide the API key and domain name for your MailGun account, and it will begin using the MailGun Web API to send *all* emails going out of REDCap.
- **New feature: Project-level setting "Prevent branching logic from hiding fields that have values"**
    - This setting can be enabled by any project user with Project Setup/Design privileges in the Additional Customizations popup on the Project Setup page.
    - This setting affects both data entry forms and surveys. If it is not enabled (default), then whenever a field is to be hidden by branching logic on a data entry form, it will always ask the user if they wish to hide the field and erase its value, whereas on survey pages it will automatically erase the value of the field being hidden without displaying the confirmation prompt, which has always been the default behavior for surveys. If this setting is enabled, the branching logic behavior will change so that fields with values will not cause the 'Erase the Value of the Field?' confirmation prompt to ask the user if they wish to keep the value or hide the field, and instead fields with values will not be hidden by branching logic and will stay visible. Thus they will be exempt from branching logic. This will prevent data from being erased as it normally does if fields are hidden by branching logic.
    - When a field should be hidden by branching logic but is not hidden because it has a value, an icon will be displayed on the field to indicate this to the user.

    - This project-level setting is included in the API Export Project Info method as “bypass_branching_erase_field_prompt”. The REDCap Mobile App will soon have this same functionality, but it will only work if the REDCap server is on REDCap 11.2.0 or higher.
    - The name of Data Quality rule F has been slightly changed when this setting is enabled from “Hidden fields that contain values” to “Fields that contain values that should be hidden”.
  - **New action tag: @DOWNLOAD-COUNT** - The @DOWNLOAD-COUNT action tag provides a way to automatically count the number of downloads for a File Upload field or a Descriptive field attachment. It can be used on a Text field or Notes field so that its value will be incremented by '1' whenever someone downloads the file for either a File Upload field or a Descriptive field attachment. The variable name of the File Upload field or Descriptive field whose downloads are to be counted should be provided inside the @DOWNLOAD-COUNT() function. For example, the Text field 'my_download_count' might have its action tag defined as @DOWNLOAD-COUNT(my_upload_field), in which 'my_upload_field' is the variable of a File Upload field. Whenever the file is downloaded on a data entry form, survey page, or report, the value of the field with this action tag will be incremented by '1'. If that field has no value or has a non-integer value, its value will be set to '1'. NOTE: The download count field must be in the same context as the File Upload field or a Descriptive field. This means that in a longitudinal project the two fields must be on the same event, and in a repeating instrument context, they must be on the same repeating instrument.
- **New action tag: @RICHTEXT** - Adds the rich text editor toolbar to a Notes field to allow users/participants to control the appearance (via styling and formatting) of the text they are entering into the field.
- **New API methods**
  - Delete User - Remove a specified user from a project.
  - Export User Roles - Returns a list of user roles, including their role name, unique role name, and privileges, from a project.
  - Import User Roles - Allows one to create new roles (specifying their role name and privileges) or edit the role name and privileges of existing roles.
  - Delete User Role - Deletes a specified user role from a project.
  - Export User-Role Assignment - Returns a list of project users and what user role to which they are assigned.
  - Import User-Role Assignment - Allows one to assign, reassign, or unassign one or more users to/from a user role in a project.
- **New features:** New drop-down options on the User Rights page to allow users to perform the tasks listed below using a CSV file in the user interface.
  - Upload users and their privileges
  - Download users and their privileges
  - Upload user roles and their privileges
  - Download user roles and their privileges
  - Upload user role assignments
  - Download user role assignments

- **New developer method: REDCap::deleteRecord()** - Plugin/hook/module developers may utilize this new method to delete entire records from a project or to delete the data from a specified instrument, event, or repeating instrument/event for specific records.
- **New feature:** “DAG Switcher” API method - When using the DAG Switcher functionality in a project, this method allows users to move themselves in and out of a Data Access Group at will using the API just as they would do the same thing in the user interface (assuming they have been assigned to multiple DAGs on the DAG Switcher page).
- **New API method “Rename record” and new developer method REDCap::renameRecord()** allows users/developers to rename a record in a project. For multi-arm longitudinal projects where a record might exist on multiple arms, the $arm number can be specified to rename the record only on the specified arm, otherwise by default it will rename the record in all arms in which it exists.
- **New action tag: @IF** - Allows various action tags to be set based on conditional logic provided inside an @IF() function - e.g., @IF(CONDITION, ACTION TAGS if condition is TRUE, ACTION TAGS if condition is FALSE). Simply provide a condition using normal logic syntax (similar to branching logic), and it will implement one set of action tags or another based on whether that condition is true or false. For example, you can have @IF([yes_no] = '1', @HIDDEN, @HIDE-CHOICE='3' @READ-ONLY), in which it will implement @HIDDEN if the 'yes_no' field's value is '1', otherwise, it will implement the two action tags @HIDE-CHOICE='3' and @READ-ONLY. If you wish not to output any action tags for a certain condition, set it with a pair of apostrophes/quotes as a placeholder - e.g., @IF([my_radio]='1', @READONLY, ''). You may have multiple instances of @IF for a single field. You may also have multiple nested instances of @IF() inside each other. Both field variables and Smart Variables may be used inside the @IF condition. The @IF action tag is also evaluated for a given field when downloading the PDF of an instrument/survey, in case there are any PDF-specific action tags used inside of @IF(). Note: The conditional logic will be evaluated only when the survey page or data entry form initially loads; thus the action tag conditions will not be evaluated in real time as data is entered on the page.
- **New feature: Protected Email Mode**
    - Users can enable the Protected Email Mode on any project on the Project Setup via the Additional Customization dialog. This setting prevents identifying data (PHI/PII) from being sent in outgoing emails for alerts, survey invitations, and survey confirmation emails.
    - If enabled, either A) all alerts, survey invitations, and survey confirmation emails or B) those whose email body is attempting to pipe data from Identifier fields will be affected, in which it will not send the full email text to the recipient but will instead send a surrogate email containing a link that leads them to a secure REDCap page to view their original email. If someone is accessing an email in the Protected Email Mode for the first time (or for the first time in the past 30 days), it will send a security code to their inbox that will allow the recipient to view any protected emails for up to 30 days on that same device. The Protected Email Mode is similar to Microsoft Outlook's "sensitivity label" feature.
    - When enabled in a project, user’s may specify custom text/HTML to display at top of the sent email and web page where the original email is viewed. This will allow users to also display logos/images pertaining to their project or institution.

  - This feature can be disabled in all projects via a global setting on the Modules/Services Configuration page in the Control Center.
- **New feature: Email Logging page**
  - This is a new project page that contains a search interface to allow users with User Rights privileges to search and view ALL outgoing emails for that project (also includes searching and viewing of SMS messages if using Twilio services).
  - This feature can be disabled in all projects via a global setting on the Modules/Services Configuration page in the Control Center.
  - “Re-send email” feature - When viewing an individual email after performing a search on the page, a “Re-send email” button will be displayed in the dialog to allow users to re-send the email. Note: If the original email contained email attachments, the attachments will not be included in the email that is re-sent.
  - Only users with User Rights privileges in the project may access the page, and additionally they must opt-in and agree to a disclaimer before being able to view the page. The following text will be presented to the user before accessing the page: “Before viewing and accessing this page, you must first agree that you understand the following important information and conditions. This page is only accessible by users having User Rights privileges in this project. The Email Logging feature allows users to search and view *all* outgoing emails related to this project, and this includes being able to view all aspects of any given email (i.e., the recipient(s), sender, subject, message body, attachment names). If you are using anonymous surveys in this project, keep in mind that viewing this page and the emails displayed therein might inadvertently cause anonymous survey responses to be identifiable/de-anonymized. Additionally, if the project is using Data Access Groups, you will be able to view the emails related to all DAGs in this project (and thus possibly any data piped into the body of those emails). If you understand and agree to these conditions, click the button below. Please note the act agreeing to this disclaimer will be documented on the project Logging page.”

Bug Fixes / Improvements
Version 11.0.0

- **Improvement:** Report “description” text now utilizes the rich text editor. Additionally, users may perform piping into a report’s description, such as project-level Smart Variables, including Smart Charts, Smart Functions, and Smart Tables.
- **Improvement:** New option for Project Templates called “copy records”, which will copy any existing records in the template to the new project created from the template. This option can be enabled for any new or existing Project Templates.
- **Improvement:** A new Project Template was added to illustrate new features in 11.0+. The new template is named “Project Dashboards, Smart Functions, Smart Tables, & Smart Charts”.
- **Change/improvement:** The Logic Editor popup is now utilized when editing the "Action Tags/Field Annotation" text box in the Online Designer. (Ticket #103007)
- Bug fix: When exporting data via the Export Records API method as type=eav, it would mistakenly fail to include the value of the redcap_event_name field (and would export it as blank/null) if the project is longitudinal and the exported data format is XML or JSON. Bug emerged in REDCap 10.6.16 (LTS) and 10.9.3 (Standard). (Ticket #105673)
- Bug fix: When attempting to use the Easy Upgrade on an AWS Quick Start deployment of REDCap, the upgrade process may fail due to "\r" characters in the upgrade shell script. (Ticket #103939)
- Bug fix: When creating a project via a Super API Token, the API call would fail due to a fatal PHP error, thus preventing the project from being created. Bug emerged in REDCap 10.6.16 (LTS) and 10.9.3 (Standard).
- Bug fix: When importing data (via Data Import Tool, API, or REDCap::saveData), all records would mistakenly have spaces trimmed off the beginning and end of every value being imported. This would prevent the data from being imported as-is. It now no longer trims whitespace off of the beginning and end of data values during data imports.
- Bug fix: On certain occasions, an alert that is triggered may mistakenly send an email to the "Email to send email-failure errors" recipient multiple times (instead of just once) or may send it to that recipient when it is not supposed to.
- Bug fix: A field using the @CALCTEXT action tag would mistakenly return a blank value whenever it should be returning a value of 0. (Ticket #105128)
- Bug fix: When using the concat() function in a @CALCTEXT field, the calculation might mistakenly fail if certain characters such as "+" are utilized inside the concat() function. (Ticket #105445)
- Bug fix: When a text box field is embedded inside a checkbox field on a survey that is using Enhanced Checkbox/Radio Fields, the checkbox would be unable to be selected. (Ticket #97954)
- Bug fix: When a checkbox field is embedded inside a checkbox field, it would mistakenly check the first sub-checkbox whenever checking the parent checkbox. (Ticket #97954)
- Bug fix: When a radio field is embedded inside a checkbox field, several things would function incorrectly when clicking on the labels of the radio fields or their "reset" link. (Ticket #105001)

Version 11.0.1

- **Improvement:** The Smart Charts [pie-chart] and [donut-chart] now display the percentage value on top of each colored slice in the chart.
- **Improvement:** On the Calendar page when viewing the "View/Edit Calendar Event" popup for a calendar event that is attached to a record, the popup now displays a "View Record Home Page" link next to the record name to allow the user to easily navigate to the record.
- **Major bug fix:** Alerts & Notifications that are set to be sent via SMS or Voice Call would mistakenly not get sent whenever the alert is triggered. Bug emerged in REDCap 10.6.18 LTS and 11.0.0 Standard. (Ticket #106260)
- Bug fix: When viewing the public URL of a project dashboard, the dashboard's project_id would mistakenly not get passed to the redcap_every_page_before_render hook.
- Bug fix: The wrong language is mistakenly used in the Smart Variable documentation for the ":no-export-link" Smart Table parameter. (Ticket #106023)
- Bug fix: When using the wizard on the Project Dashboard creation page, it might mistakenly insert the unique report name for the wrong report into Step 4 when selecting an option in the report drop-down in Step 3. (Ticket #106013)
- Bug fix: Smart Charts that are "bar-chart" type with the ":bar-vertical" parameter would mistakenly have the field label displayed on the Y-axis when instead it should be located on the X-axis for vertical display. (Ticket #106017)
- Bug fix: On surveys that have Enhanced Radio & Checkboxes enabled, in which radio fields are embedded inside checkbox labels or checkboxes are embedded inside radio labels (or other variations of these), some of the options might mistakenly not be selected after clicking on them. (Ticket #105880)
- Bug fix: When using the ":inline" piping parameter on a File Upload field that has a PDF file uploaded to it, the PDF would fail to successfully embed on the page and would mistakenly display a bunch of HTML in its place. (Ticket #105462)
- Bug fix: The External Service Check for the NML Field Bank service was mistakenly missing on the Configuration Check page. (Ticket #106086)
- Bug fix: When using the Designated Phone Field with the Twilio telephony services for surveys, the participant's record ID might mistakenly not be displayed on the Survey Invitation Log in certain cases. (Ticket #49955)
- Bug fix: When creating a new Table-based authentication user on the "Create single user" page in the Control Center, it is possible to create a user without entering a value for their username. That should not be allowed. (Ticket #106103)
- Bug fix: Smart Charts that are "bar-chart" type and use a second field for grouping might mistakenly display the wrong counts in the chart if there exist any blank values for the grouping field, or it might mismatch the counts for the wrong grouping category in certain scenarios. (Ticket #106017)
- Bug fix: When using the "Move to Production status" public survey for "Custom Surveys for Project Status Transitions" when users are not allowed to move projects to production on their own but must request an administrator do so on their behalf, if the user failed to select the radio button asking "Keep existing data or delete?" in the dialog pop-up and then they completed the

public survey afterward, the "Working..." progress message would appear and never go away, thus preventing the request from being submitted correctly. (Ticket #106173)

- Bug fix: When the datediff cron job is running for Alerts & Notifications that contain datediff+today/now in their conditional logic, the cron job might mistakenly take a long time to complete (or might time out) because the record list cache has not been created yet for the projects for which the cron job is processing. To prevent the cron job from taking too long and possibly timing out, it will attempt to build the record list cache in real time for each project it is processing. This may mean that initial attempts of the cron job may still take a long time, but later instances of the cron should be much faster.
- Bug fix: When the datediff cron job is running for Automated Survey Invitations that contain datediff+today/now in their conditional logic, the cron job might mistakenly take a long time to complete (or might time out) because the record list cache has not been created yet for the projects for which the cron job is processing. To prevent the cron job from taking too long and possibly timing out, it will attempt to build the record list cache in real time for each project it is processing. This may mean that initial attempts of the cron job may still take a long time, but later instances of the cron should be much faster.
- Change: The REDCap cron job now automatically resets a project's record list cache if the project has had some activity in the past week and if its cache is more than 5 days old. In previous versions, it would only reset the cache if the project had some activity in the past week when its cache was more than 3 days old. This was changed because the cache is more stable in recent versions and doesn't require being reset quite as often.
- Bug fix: When using the survey setting "Time Limit for Survey Completion" in which a user clicks the clock icon for a participant in the Participant List in order to modify their Link Expiration time, clicking the "Expire it now" button in the dialog would mistakenly fail to do anything because of a JavaScript error. (Ticket #106167)
- Bug fix: When a text field is embedded inside a checkbox field, clicking inside the text box mistakenly causes its parent checkbox to become unchecked. (Ticket #105001b)
- Bug fix: When launching the Clinical Data Pull embedded window inside an EHR user interface, it might mistakenly say that the current web browser is not compatible.
- Bug fix: In some cases, upgrading to REDCap 11.0.0 mistakenly did not load the new project template that illustrates Project Dashboards, etc. If that project template is missing, it will automatically be added when upgrading to 11.0.1. (Ticket #105976)
- Bug fix: If a field is using the @CALCDATE action tag that references a field variable as the second parameter, if that second parameter field has a blank value, the @CALCDATE calculation might return an incorrect value when instead it should be returning a blank value. This only occurs on the server-side (PHP) processing of @CALCDATE when a form/survey is being saved, and does not occur with the client-side (JavaScript) version of the function. This means that while the value looks blank when viewing a data entry form or survey page, the incorrect value would be seen on reports, data exports, or wherever the @CALCDATE field is being piped. (Ticket #106243)
- Bug fix: If using a survey-level designated email field, in certain cases the Participant Email displayed in the Survey Invitation Log might mistakenly be blank or might display the project-level designated email field instead. Bug emerged in REDCap 10.6.18 LTS and 11.0.0 Standard.

- Bug fix: When a survey invitation is sent to a participant via a Twilio SMS message, viewing the message afterward in the Survey Invitation Log would mistakenly display extra text (e.g., "-- To begin the survey, visit...") appended to the message that did not actually get sent to the participant in the SMS message. Additionally, when viewing an SMS message in the Survey Invitation Log, it would mistakenly display any URLs in the message as clickable links instead of correctly displaying them as non-clickable URLs, which is more accurate to how they are seen by the recipient. (Ticket #104997)
- Bug fix: When a project has been set up with Automated Survey Invitations and is using the Designated Email Field, the Public Survey Link page might mistakenly display the red box saying "WARNING: The designated email field does not exist on the first survey", which might not be true if a survey has been orphaned (created in the past but then later removed) in which the survey had one or more ASI's set up for it.
- Bug fix: Dots/periods have been allowed in checkbox codings since REDCap 9.9.0, but the data dictionary import process would still mistakenly display an error message saying that this is not allowed, which is not correct. (Ticket #106375)
- Bug fix: When a project is using Twilio for sending survey invitations, and an Automated Survey Invitation is set to "use participant's preference" for the invitation type/delivery method, then any participant whose delivery preference is "email" would mistakenly receive the expected email body text but with extra text appended to it (e.g. "Please take this survey. You may open the survey..."). In many cases, this means that the email body is duplicated in the email, which is not desirable. (Ticket #102953)
- Bug fix: When editing a field in the Online Designer and using different background colors or text colors in tables added via the rich text editor, a survey theme's color might mistakenly override a table row's or table cell's background/text color when viewing the field on a survey page. (Ticket #106340)
- Change/improvement: The green highlight background color will no longer appear when a user/participant puts focus on or clicks on a field that is embedded inside another field on a data entry form or survey. From now on, it will only highlight the field with green for non-embedded fields. This should improve the user experience when many fields are embedded in the same table row on the page in which the green highlight would highlight all of them (sometimes making the entire page green), which is often not desirable.
- Bug fix: For certain projects, unique report names were mistakenly not being generated for some or all reports in the project. (Ticket #106366)

Version 11.0.2

- Change/improvement: A new database configuration check was added to the Configuration Check page that looks at the value of the optimizer_switch's "rowid_filter" setting to make sure that it is set to OFF in the MySQL configuration file. Having that setting turned on can cause certain issues when running REDCap. (Ticket #103092)
- Change/improvement: Added four new redcap_log_event database tables for new projects to improve server performance when REDCap is querying logging data for a project. Note: This will

not improve performance when querying the logging records of existing projects but only applies to projects created after upgrading to v11.0.2 or higher.

- Change: The alphanumeric hash that exists in all survey links has been increased in length from 10 to 16. Any new survey links created will have a 16 character length hash.
- Bug fix: If a data export takes a long time and the user is away from the computer so long that the auto-logout dialog displays on the page, the auto-logout dialog would mistakenly be displayed underneath the "Exporting data" popup, thus preventing the user from seeing it and preventing the auto-logout process from occurring. (Ticket #106545)
- Bug fix: When not using record auto-numbering in a project while viewing the Add/Edit Records page or Record Status Dashboard, if a record name is hand-entered in a different case than in which it was saved (e.g. "abc" vs "ABC"), it might cause issues on the Record Home page, such as not displaying Custom Labels for Repeating Instruments. (Ticket #106559)
- Bug fix: When viewing a custom Record Status Dashboard in a project that has Double Data Entry enabled, the custom dashboard's "sort by" setting (if utilized) would mistakenly not sort the dashboard's records correctly for any user that has the DDE #1 or #2 designation. (Ticket #105030)
- Bug fix: When REDCap is reporting its general stats to the consortium, it would mistakenly fail to send them in some cases where the URL ended up being more than 2000 characters long.
- Bug fix: A survey theme's background color might mistakenly not get applied to a radio/checkbox matrix on the survey page, thus displaying part of the matrix in the wrong color. Bug emerged in the previous version. (Ticket #106712)
- Bug fix: If the system-level setting for setting Project Dashboards as "public" is set to "Yes, but an administrator must approve the request", that feature would not work correctly and would mistakenly allow normal users to set their dashboards as public without the approval process. (Ticket #106813)
- Bug fix: If the system-level setting for setting Project Dashboards as "public" is set to "Yes, but an administrator must approve the request", if a normal user clicks the "Copy" button to copy a dashboard that has been set as public, it would mistakenly set the newly created dashboard as public also. In this situation, it should set it not to be public, and a user would need to edit the newly created dashboard and click the "Set as public" setting to put in a new request for an admin to approve this new dashboard to be public. (Ticket #106813b)
- Bug fix: Clicking the "Enable color-blind accessibility" on public Project Dashboards would fail to work. (Ticket #106901)
- Bug fix: The chart legend was mistakenly not being displayed for the Smart Charts scatter-plot, line-chart, and bar-chart when using a grouping field for them. (Ticket #106543)
- Bug fix: The setting "Designate an email field for communications (including survey invitations and alerts)" on the Project Setup page would mistakenly be disabled and not usable unless the project has the setting "use surveys in this project?" enabled, which is not correct since the designated email setting can be used for more than just surveys.

Version 11.0.3

- **Major bug fix:** When using an Adaptive or Auto-Scoring instrument downloaded from the REDCap Shared Library, in which that survey was set to use "Enhanced radios and checkboxes" via the Survey Settings page, the survey would not function and would not allow participants to submit their responses unless the survey was reverted to no longer using "Enhanced radios and checkboxes".
- Bug fix: The Survey Link Lookup page in the Control Center would fail when using a new survey link that has a 16 character length hash. (Ticket #106907)
- Bug fix: When a survey participant is taking a specific Adaptive or Auto-Scoring instrument (such as "NIH TB Hearing Handicap Age 65+") downloaded from the REDCap Shared Library that contains an initial descriptive text field (i.e., it has no choices to choose from), the survey would not function and would not allow participants to submit their responses. Note: This only affects 3 or 4 total Adaptive or Auto-Scoring instruments in the entire REDCap Shared Library.
- Bug fix: If a report contains filter logic containing around 900 or more field variables, the report might mistakenly return 0 results instead of the appropriate results. REDCap cannot parse more than 900 or so field variables in logic due to a limitation in PHP. If more than 900 field variables are used in a report's filter logic and it causes PHP to crash, REDCap will provide a helpful error message in this case to inform the user that there is either a syntax error in the filter logic or that it is too long and needs to be shortened. (Ticket #106834)

Version 11.0.4

- Change: If the setting "Allow normal users to add or modify events and arms on the Define My Events page for longitudinal projects while in production status?" on the User Settings page is set to "Yes", then in any longitudinal projects that are in production status, normal users will no longer be able to modify the name of an existing arm or event. Since renaming an event or arm can have drastic downstream consequences, such as if the unique event/arm name is used in any calculations, branching logic, report filters, or other conditional logic throughout the project, users are now prevented from renaming events and arms in this case as an extra safety net. If a user attempts to rename an event or arm, it will now display an informational message letting them know that they should contact an administrator to complete that task for them.
- Bug fix: When using the Survey Queue in a longitudinal project, there are some scenarios where the queue might mistakenly not process the conditional logic correctly for a survey in the queue, thus causing it to return an empty queue or omit some surveys from being displayed in the queue. (Ticket #106801)
- Bug fix: PHP 8 compatibility error when viewing some custom record status dashboards. (Ticket #107055)
- Bug fix: When using the Data Resolution Workflow in which a normal user is attempting to delete a file attachment that has been uploaded to an opened data query, it would mistakenly display an error message every time. Instead it should display a message letting them know that only administrators are allowed to delete files attached to data queries. (Ticket #106984)
- Bug fix: PHP 8 compatibility error when using Two Factor Authentication. (Ticket #103721)
- Change: REDCap now sets "SESSION binlog_format=MIXED" for every connection in MySQL to provide greater compatibility with MySQL clusters. (Ticket #107202)

- Bug fix: PHP 8 compatibility error when using the DAG Switcher. (Ticket #107209)
- Bug fix: PHP 8 compatibility error that occurs in some specific cases when viewing the Record Status Dashboard. (Ticket #107225)
- Bug fix: When a project contains repeating events in which a report has filter logic to filter out specific repeating instances (e.g., [current-instance] <> "" and [current-instance] = [first-instance]), the report might mistakenly display no results or incorrect results when there is actually data to display. This does not affect repeating instruments but only repeating events.
- Bug fix: When a radio button field that is part of a matrix is embedded on a data entry form or survey page, the radio button's "reset" link would mistakenly not get embedded along with its associated field. Thus there would be no way to reset a matrix radio field that is embedded. Now the "reset" link appropriately gets moved to be immediately below its associated embedded radio field.
- Bug fix: To prevent Microsoft Outlook Safe Links from submitting surveys and junk data on its own, REDCap survey pages now block all POST requests that originate via the IP address range 52.147.217.*, in which it immediately returns an error message. This is in addition to a recent fix that protected surveys from Safe Links coming from another IP range (40.94.*.*).
- Bug fix: When REDCap is sending a large amount of email notifications from REDCap Messenger, such as when there is a General Notification or System Notification, if the cron job process for sending the emails takes too long, it may mistakenly get run several times, resulting in users receiving the same email notification several times. (Ticket #107208)

Version 11.0.5

- **Major bug fix:** Reverted the following change from REDCap 11.0.4 (Standard) because it cause major parts of REDCap not to work anymore for some server configurations: "REDCap now sets "SESSION binlog_format=MIXED" for every connection in MySQL to provide greater compatibility with MySQL clusters (Ticket #107202)". (Ticket #107335)
- Bug fix: When a project is in Analysis/Cleanup mode, and a user wishes to set the project data to be read-only/locked, the popup dialog for doing this mistakenly has the wrong text for the dialog buttons.
- Bug fix: Most of the stock language used for displaying errors for calculations and branching logic were mistakenly not abstracted and therefore were not translatable into a non-English language for a project. (Ticket #106976)
- Bug fix: When using a Project XML file to create a project, it would mistakenly display an error that the record ID field could not be found in the XML file, which is not true. Bug emerged in REDCap 11.0.4.

Version 11.1.0

- **Improvements: Other FHIR/CDIS additions**
    - Clinical Data Mart

        - A new template is used for new DataMart projects when REDCap is set to use R4, including new forms for Encounters, Immunizations, Core Characteristics, Adverse Events.
        - New option to fetch data in a background process and receive an email when completed.
        - MRNs can be searched and fetched individually on the Clinical Data Mart page.
    - Epic institutions using the "legacy" app on the Epic App Orchard will be notified on the CDIS Control Center page with info about how to upgrade to the new R4 enabled version.
    - While on the CDIS Control Center page, changing the FHIR client ID will now automatically remove all existing FHIR access tokens stored in the backend. Note: This will not impact any data but will require each CDIS user to perform a standalone launch again or else launch REDCap via the CDP embedded window in the EHR interface before they can begin to pull data again from the EHR.
    - The FHIR statistics in the Control Center now displays CDP instant adjudication.
- **Improvement:** If using Twilio for SMS/Voice Call verification for Two Factor Authentication, there is now a new alternative phone number field on the Security & Authentication page for providing a number only to be used for the Voice Call option for 2FA. This is useful if you are in a country where a single phone number cannot be used for both voice calls and SMS. If the new field is left blank, then the existing number will be used for both SMS and voice calls, but if this new field is utilized, its value will be used for the 2FA voice call option while the first number will only be used for the 2FA SMS option. (Ticket #99563)
- **Major bug fix:** If a project has randomization enabled and is using strata fields, if one or more strata fields exist on a survey instrument, and the survey containing the strata field(s) is opened after the record has been randomized, the strata fields would mistakenly not be disabled/readonly on the survey page but could be edited, which can cause major issues with a randomized project. It is expected that the strata fields should be disabled/readonly (whether on the data entry form or survey page) after the record has been randomized.
- Change/improvement: The To-Do List page now contains a “PID” column to display the project ID of the project for which the user request belongs.
- Change: For certain processes in which administrators perform an action that causes an email to be sent to a user (e.g., creating new Table-based users, rejecting/resetting a user's draft mode changes, and various requests from user sponsors via the Sponsor Dashboard), the email to the user would come from the admin processing the request or performing the work. Whereas many other similar tasks would send an email with the From address as the "Email Address of REDCap Administrator" value instead (which might be different from the current user). To make things more consistent now among these admin-related tasks, in all cases these emails will have their From address be the "Email Address of REDCap Administrator". (Ticket #88651)
- Change/improvement: If the REDCap database connection needs to use a specific value for the MySQL/MariaDB "binlog_format" setting that is different from the value set in the MySQL configuration file, it can now be set on the General Configuration page to MIXED, STATEMENT, ROW, or "Use system default setting" (default). It is recommended to leave this with the default

setting unless you absolutely know you need to change this and are intentional about it. This will provide greater compatibility with MySQL clusters, etc. (Ticket #107202b)

- Change: Updates and new content for the Help & FAQ page.
- Bug fix: When copying a project dashboard, the popup dialog might mistakenly display the name of the wrong dashboard.
- Bug fix: When accessing an invalid link for a public project dashboard, it would mistakenly not display any error message.
- Bug fix: When creating a custom link for a public project dashboard, it might mistakenly show a success message even when the custom link returns an error because it has already been taken.
- Bug fix: When a project has a very large number of arms, it may prevent the Record Status Dashboard from displaying data properly, and might also prevent the background "record list cache" process from completing successfully. (Ticket #107502)
- Bug fix: In server environments with PHP error reporting enabled, it would display a deprecation notice regarding the constructor of the PEAR Log class. (Ticket #55557b)
- Bug fix: When unlocking an instrument using the Unlock button at the bottom of a form, any fields with the @READONLY or @READONLY-FORM action tag would mistakenly become editable. (Ticket #107549)
- Bug fix: The <caption> HTML tag was mistakenly not allowed in field labels, survey instructions, and all places that display user-defined text on a webpage. (Ticket #107664)

Version 11.1.1

- **Improvement:** The Easy Upgrade process should now take much less time to complete due to the implementation of a faster unzipping method used when extracting the source code files on the server from the REDCap upgrade zip file that was downloaded. (Note: This faster Easy Upgrade process may not be seen in this upgrade but in the upgrade after this one.)
- **Security Improvement for the External Module Framework**
    - Cross-site Request Forgery (CSRF) protection is now available for module pages/endpoints in framework version 8. If a module has a "framework-version" value of “8” or higher in the module’s config.json file, then a valid redcap_csrf_token parameter will now be required on all POST requests (unless manually set as exempt), but will be automatically added behind the scenes in many cases.
    - **NOTE: If a module is on a framework version lower than 8 (or if the framework-version is not defined in config.json), then that module does not have CSRF protection.** So every module currently available in the REDCap Repo or otherwise will have to be updated in order to gain this CSRF protection feature. Thus, action is required by the module creator to add this security protection.
    - Many module pages where the REDCap page headers are included will not require any changes because the redcap_csrf_token parameter will automatically be added to static forms and jQuery post() method calls. In this case, updating "framework-version" to “8” in config.json is all that is required for adding CSRF protection.

  - The redcap_csrf_token POST parameter will need to be added to dynamically generated forms, jQuery ajax() calls, non-jQuery javascript requests, and POST requests on pages where the REDCap headers are not included. In those cases, the $module->getCSRFToken() method should be used to set the value of the redcap_csrf_token POST parameter. All POST requests made by module code should be tested before releasing a module update for this framework version.
  - For the very small number of pages where CSRF tokens should not be required (like custom APIs), pages can be omitted from CSRF checking by adding them to config.json as follows (similar fashion to no-auth-pages). See the Configuration Example module for an example. Do NOT abuse this feature by using it in cases where you should be using CSRF tokens: { "no-csrf-pages": ["some-page"] }
- Bug fix: When importing a file via the File Import API method in which the file exceeds the maximum allowed file size, it would return an error message that mistakenly referenced the max upload size of the server instead of the max upload size that is manually set for File Upload fields for the project, which might be a different value than the server maximum.
- Bug fix: If an error popup for a calculation or branching logic appears immediately when a survey page or data entry form initially loads (due to syntax errors in the branching/calculation), the stock language in the error message itself would mistakenly say "undefined" instead of actual text. However, this would not occur if the error message was displayed later on after the page had already loaded.
- Bug fix: Certain example plugins that are included in an initial installation of REDCap would mistakenly display PHP errors if they are accessed without a "pid" parameter in their URL. (Ticket #107782)
- Bug fix: Fixed error that prevented data from being saved in DDP Custom projects
- Bug fix: When using the "Select instruments/events" option for a custom record status dashboard, it would mistakenly not limit the dashboard to those instruments/events. (Ticket #107785)
- Bug fix: The "Preview Message by Record" feature on the Alerts & Notifications page would mistakenly not work when selecting a record from the drop-down list.
- Bug fix: The horizontal line on which users/participants write their signature was mistakenly not displaying in the "add signature" dialog on forms/surveys.
- Bug fix: The "Export Records" and “Export Reports” API method would mistakenly use the system-level default CSV delimiter (set on the User Settings page) when performing an API CSV export in "flat" format instead of correctly outputting a comma as the default CSV delimiter whenever the "csvDelimiter" parameter has not been defined in the API request. (Ticket #108082)
- Bug fix: When copying a project or creating a new project using a project template, it would mistakenly not copy over the project-level settings below (Ticket #108151):
  - Delete a record's logging activity when deleting the record?
  - Auto-delete all Data Export Files in the File Repository that were created more than X days ago?
  - Exempt the project from 2-step login?
  - Always force 2-step login in this project for EVERY login session?

- Double Data Entry module
- Date Shifting De-Identification Option: Date Shift Range
- Enable/disable the Shared Library for this project?

Version 11.1.2

- Improvement: New alternative PDF print option in the "Download PDF" drop-down at the top of data entry forms, in which there is a new PDF export choice: "This data entry form with saved data (send to printer: select "Save as PDF" for Printer/Destination)". This will produce a much improved browser-based print option to print/save the webpage as a PDF that serves as a suitable alternative to the existing server-side PDF rendering options, which can sometimes be very limited and inaccurate (e.g., when representing field embedding). Note: This "Print to PDF" does correctly hide fields that have the @HIDDEN-PDF action tag.
- Change: Due to concerns about sending identifying information from REDCap in outgoing emails, Survey Notification emails will no longer include the Participant Identifier in the email body (if a Participant Identifier was entered in the Participant List for a given participant).
- Bug fix: Smart Charts, Tables, and Functions that have a unique report name or "user-dag-name" as a parameter were mistakenly not using the impersonated user's username and DAG when an administrator uses the "View project as user" tool, thus mistakenly utilizing all data in the project for the Smart Chart/Table/Function instead of just the data from that user's DAG. (Ticket #108017)
- Bug fix: Some FHIR metadata fields were mistakenly not being displayed in Clinical Data Pull (CDP) mapping page if using FHIR v2 (DSTU2).
- Bug fix: When a user or admin is clicking the "Yes, move to production status" button in the Move To Production dialog in a development project, it would mistakenly not disable the button after being clicked, which might cause confusing pop-up messages to appear if the button was clicked again before it finished processing. (Ticket #108321)
- Bug fix: When using the Data Resolution Workflow and assigning a user to a data query, the Messenger notification would mistakenly fail if the user chose to notify the other user of their assignment via Messenger. Thus they would not be notified. (Ticket #108335)
- Change: When setting the 2-step login controls for a given project on the "Edit a Project's Settings" page, it now displays a popup warning if an admin attempts to set both settings to "Yes" (because they are not compatible). (Ticket #108326)
- Bug fix: When importing or deleting a file via the API Import File or Delete File methods, it would mistakenly allow users to import files even when the entire record is locked or when the record/event/instrument/instance is locked for that file upload field. (Ticket #108399)
- Bug fix: When an alert has an email address set for the setting "Email to send email-failure errors", in certain situations (such as when running the "Re-evaluate Alerts" process) it would mistakenly send the email failure notification for *all* alerts in the project instead of just the ones that have an email address defined for the "Email to send email-failure errors" setting. This could result in some users receiving many more emails than expected when an alert fails to send successfully. (Ticket #85030)

- Bug fix: Fields that are embedded inside other embedded fields might not fully have their data piped in the field's label when viewed in a downloaded PDF of an instrument but might still display some field variables inside braces/curly brackets. (Ticket #108310)
- Bug fix: In certain cases where a backslash (\) is used in a data value that gets piped (e.g., text that contains "p\0.0233"), it might cause the data to get piped recursively many times and mistakenly output a mangle mess of text. (Ticket #108451)
- Bug fix: When selecting the Export Records method in the API Playground, if one or more values were selected for the Fields, Forms, or Records parameter, and then they were deselected to have no selections for them, the API request would return an error after clicking the Execute Request button on the page. (Ticket #108526)
- Bug fix: When clicking the "Delete data for THIS FORM only" button at the bottom of a data entry form, if the record currently exists in multiple arms and the form data being deleted is the only data in the current arm for the record, it would mistakenly delete the record from the arm in addition to removing the form data (although the record would still exist in other arms). This would not cause any data loss, technically, but the user would have to recreate the record in that arm again.

Version 11.1.3

- **Improvement:** Reports A and B now have built-in Live Filters: 1) the record ID field, 2) a list of all events (if the project is longitudinal), and 3) a list of all Data Access Groups (if the project contains DAGs and the current user is not assigned to a DAG).
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into the URL of a specific endpoint.
- New videos: Added two new videos for Project Dashboards and Smart Charts/Functions/Tables on the Training Video page, Project Dashboards page, and Smart Variable popup documentation.
- Change: Small change to add clarity to the text of Step 1A when creating/editing an alert on the Alerts & Notifications page.
- Bug fix: A PHP error would mistakenly occur in the redcap_connect.php file if the binlog_format setting for MySQL/MariaDB has been enabled on the General Configuration page in the Control Center. (Ticket #108667)
- Bug fix: When exporting data to SAS in which the export contains some Ontology Text fields that have a dash in the raw value for some records in the export, it would prevent the data from being successfully loaded into SAS. Now when creating SAS formats for character variables in the resulting SAS syntax file, the values will be wrapped in single quotes for greater compatibility (unless all the values/options are numerical for the field).
- Bug fix: Calendar events that had no time set (i.e., only had the date set) but were scheduled or attached to a record would mistakenly not be ordered by record name when displaying the events of a given day on the Calendar page. (Ticket #108688)
- Bug fix: If a "bar-chart" Smart Chart utilizes multiple fields and also references a report via its unique report name, if the order of the fields defined in the Smart Chart is different than the order

of the fields as they appear in the report, the bar chart would mistakenly not display correctly. (Ticket #108709)

- Bug fix: When a project is in draft mode, the Online Designer would mistakenly allow users to modify the variable name of matrix fields that exist live in production (i.e., not just in draft mode), which should not be allowed because it could inadvertently cause fields to be deleted via renaming. (Ticket #108705)
- Bug fix: Smart Charts and Smart Tables would mistakenly display HTML tags inside the chart/table if any HTML tags exist in the choice labels or field labels for the fields being utilized in the chart/table.
- Bug fix: Smart Charts with long field labels or long choice labels might cause text to overlap on themselves or might show only the label ending and not the beginning, which is due to a limitation in the ChartJS library used to generate the charts. Such labels are now truncated to fit better in the chart by using an ellipsis in the middle of the label for optimal display.
- Bug fix: When using the background fetch method for fetching EHR data via the Clinical Data Mart service, it no longer sends the user an email when the process has finished but instead sends a message via REDCap Messenger. This has been changed because it could be possible that any error messages sent inside the email might contain Medical Record Numbers. So sending the notification via Messenger is more secure.
- Bug fix: When a REDCap server uses the HTTP_X_FORWARDED_FOR header for a user's IP address, in which the IP actually contains multiple IPs delimited with commas (often because a load balancer is being utilized), it now instead just uses the first IP address in the list rather than the whole value, which was causing a blank IP address to be recorded in REDCap's logging for users in this particular case.
- Bug fix: In very specific cases where data has been imported into an instrument (but not for the form status complete field) and no user has entered data for that instrument via the data entry form or survey page yet, the form status icon might mistakenly display as a gray color instead of as red on the Record Home page or Record Status Dashboard. (Ticket #108183)
- Bug fix: If using "LDAP" or "LDAP & Table-based" authentication, any user containing an apostrophe in their LDAP username would cause JavaScript issues to occur for an administrator on the Browse Users page when performing certain actions, such as changing their 2FA code expire time, suspending/unsuspending the user, or deleting the user account from the system. (Ticket #79647d)

Version 11.1.4

- Bug fix: If a field’s value is being piped on the same data entry form or survey page where the field itself is located, if that field is being hidden by branching logic, in which the user clicks “Okay” to the “Erase value” prompt to hide the field and erase its value, the piped value seen on the page would mistakenly not get changed/reset during this process but would instead retain the previous value of the field. (Ticket #108756)
- Bug fix: When viewing Report A or B, the built-in Live Filter for the Record ID field would display a list of all records in the project, which might crash the user's browser if tens of thousands or more records exist. To prevent this, it now only displays the first ten thousand record names in the Live Filter drop-down, similar to how the Data Quality page behaves.

- Bug fix: A fatal PHP error might occur on some pages related to CDP or Data Mart for certain versions of PHP. (Ticket #108971)
- Various fixes and improvements for the External Module Framework
- Bug fix: If the headers of a matrix of fields are displayed as floating/sticky on a data entry form or survey page, the floating headers would mistakenly disappear (at least until the user scrolls the page again) whenever branching logic gets triggered or if the "Reset" link for radio buttons are clicked. (Ticket #109434)
- Bug fix: The video link for Smart Charts/Functions/Tables in the Smart Variables dialog mistakenly pointed to the Project Dashboard video.
- Bug fix: When exporting data to a stats package (e.g., SAS) in which some multiple choice fields contain "<" in a choice label, the resulting syntax file might be mangled, truncated, and/or incorrect. Also, that choice label with "<" may not display correctly on the Data Dictionary Codebook page. (Ticket #109571)
- Bug fix: When importing data in standard XML format via the API, some fields that have a blank value in the XML file might cause the data import to fail. (Ticket #109293)
- Bug fix: When using the Scheduling module for a project that has record auto-numbering disabled, it is possible that a record could mistakenly be created twice if one user creates the record via data entry at the same time that another user creates the record via the Scheduling module. (Ticket #109287)

Version 11.2.0

- **Improvements for report display and/or data exports**- When creating/editing a report, the "Additional report options" section in Step 2 now contains the new options below:
  - For projects that have repeating instruments and/or repeating events, the repeating fields that are automatically added (e.g., redcap_repeat_instrument and redcap_repeat_instance) can now be excluded from the report and data export. These fields are displayed by default in reports/exports.
  - Users may choose to display the field label, variable name, or both (default) in the header of a report. Note: This is only used when viewing reports and thus is not applicable for exports since there already exist options for choosing raw vs label format in data exports.
  - Users may choose to display the field label, raw data value, or both (default) for multiple choice fields in the data displayed in a report. Note: This is only used when viewing reports and thus is not applicable for exports since there already exist options for choosing raw vs label format in data exports.
- **Improvement:** If the value of a Text field or Notes field contains a URL or email address, the URL or email address will be converted into clickable link and mailto link, respectively, when viewing the data in a report.
- **Improvement:** More detailed logging descriptions on the Logging page for report-related logged events, such as mentioning the report name and report ID.
- **Improvement:** When users download an Instrument ZIP file for a given instrument in the Online Designer, the zip file now includes all survey settings for the instrument if the instrument has been enabled as a survey, including various files (e.g., survey logo, confirmation email

attachment). The downloaded Instrument ZIP can then be uploaded into any project to transfer both the fields and all the survey settings.

- **Improvement:** In the Online Designer, the "Custom text to display at top of survey queue" now utilizes the rich text editor to make it easier to style the custom text.
- Change: PHP 7.2.5 is now the new minimum PHP version that is required for running REDCap. Note: All versions of PHP 8 are currently supported.
- Major bug fix: Fields embedded inside radio button and checkbox choices would fail to appear on data entry forms and survey pages. (Ticket #109836)
- Bug fix: When uploading a CSV file of events on the Define My Events page for a longitudinal project that has the Scheduling module enabled, it would mistakenly not add the events in the order in which they appear in the CSV file. (Ticket #108552)
- Bug fix: When clicking a table header on the My Projects page, the projects inside any collapsed Project Folders would disappear on the page until the page was reloaded. (Ticket #107547)
- Bug fix: When clicking on a collapsed Project Folder on the My Projects page, it might mistakenly open multiple Project Folders. (Ticket #108579)
- Bug fix: HTML styling on radio button and checkbox choices would mistakenly get removed on a survey page or data entry form.
- Bug fix: Using the Smart Variable [aggregate-count] for checkboxes would mistakenly not return any value. It now returns the number of total checkboxes that have at least one checkbox option checked for the field, which is consistent with how [stats-table] behaves for checkboxes.
- Bug fix: Referencing the record ID field in the Smart Variable [stats-table] would not return any values for that row in the table.
- Bug fix: The cron job that sends email notifications for REDCap Messenger might mistakenly send multiple emails repeatedly to users. (Ticket #97084)
- Bug fix: When importing alerts via a CSV file on the Alerts & Notifications page, the “Ensure logic is still true” setting would mistakenly not get set correctly during the upload if it was already disabled/unchecked for an existing alert and then was being enabled/checked in the CSV upload.
- Bug fix: Depending on a user's number format preference as defined on their My Profile page, certain Smart Functions (e.g., [aggregate-sum:field]) might fail to work successfully in calculations and branching logic. (Ticket #109994)
- Bug fix: The survey setting "Save a PDF of completed survey response to a File Upload field" would mistakenly display Signature fields in the drop-down list when it should exclude those. (Ticket #110071)
- Bug fix: The [bar-chart] Smart Variable would fail to display any data in the chart when used with a checkbox field. (Ticket #109370)
- Change: Added a dark gray line above the Custom Application Links section (if used) on the project left-hand menu to help differentiate the Custom Application Links from REDCap's built-in application page links.
- Bug fix: When the Secondary Unique Field is enabled in a project in which a data import is being performed with values for that field, it would mistakenly allow duplicate values to be imported for the Secondary Unique Field if the same value exists multiple times within the data file being imported. (Ticket #109791)

Version 11.2.1

- Major bug fix: If using the AWS S3 file storage option, a fatal PHP error would occur when uploading or downloading documents, including on the Configuration Check page. (Ticket #110210)

Version 11.2.2

- **Improvement:** New piping parameter “:ampm” - When piping a time, datetime, or datetimes w/ seconds Text field, appending “:ampm” to the variable name (e.g., [visit_time:ampm]) will display the time in am/pm format (e.g., 4:45pm, 10:35am) instead of military time.
- **Improvement:** Ability for admins to configure the required password length and password complexity for user accounts when using Table-based authentication. These settings will default to requiring a 9-character password that must contain lowercase letters, uppercase letters, and numbers (but does not require any special characters. The following new controls have been added to the “Additional Table-based Authentication Settings” section of the Security & Authentication page in the Control Center.
  - Password Minimum Length - any length between 6 and 99 characters
  - Password Complexity options
    1. Requires both letters and numbers
    2. Requires lowercase and uppercase letters and numbers
    3. Requires lowercase and uppercase letters with either numbers or special characters
    4. Requires lowercase and uppercase letters, numbers, and special characters
- Bug fix: When making a report "public" and when viewing the report via its public link afterward, the check that ensures Identifier fields do not exist in the report would sometimes mistakenly fail to detect Identifier fields in the report.
- Bug fix: After making a report "public", if the report was made to be no longer public, it would mistakenly still display the report when viewing it via the public link. Instead it should display only an error message on that page (until the report has been made public again).
- Bug fix: If a public report contains the record ID field while the Custom Record Label or Secondary Unique Field is enabled in the project, REDCap would fail to prevent the report from being shown via the public link if any of the fields used in the Custom Record Label or Secondary Unique Field are Identifier fields. (Ticket #110288)
- Bug fix: The "Download metadata & data (XML)" button on the Other Functionality page would fail to work correctly due to a JavaScript error.
- Bug fix: When exporting a PDF of an instrument with data, any slider fields that have a custom range defined (i.e., anything other than 0-100) would mistakenly not be displayed correctly in the PDF and might appear as if the slider has a different value. (Ticket #110391)
- Bug fix: When a user is assigned to a Data Access Group while using record auto-numbering in a project, if the user attempts to schedule a record via the Scheduling page, it would mistakenly not generate the new record name correctly (i.e., with the DAG ID number appended to the end) when creating the new record.

- Bug fix: Download links for File Upload fields on surveys might mistakenly still be active and might allow participants to download the file if they still have the download link (e.g., clicking on the link [my_file:link] piped inside an email). The download link is correctly no longer active if the survey or project is inactive, but it would mistakenly be active if the survey response has been completed while the survey in general is still active. This has been changed so that it will now return an error message if someone follows the download link after the survey response has been completed and is no longer active anymore (i.e., no one can return to the survey response to modify it). (Ticket #110442)
- Bug fix: When creating a user role in a project that contains Data Access Groups, it would mistakenly display the "Assign To DAG" drop-down list in the dialog, which should not be displayed when creating roles.
- Bug fix: When assigning a user to a user role on the User Rights page while not also assigning them to a Data Access Group at the same time in the popup, it would fail to email the user even if the "Notify user via email?" checkbox is checked in the popup. (Ticket #110339)
- Bug fix: Any HTML tags used in field labels and elsewhere in a project might mistakenly get stripped out when a project is exported as a Project XML file. (Ticket #110503)
- Bug fix: Time-validated text fields would mistakenly not be formatted correctly in the "informat" and "format" statements in the resulting SAS syntax file when exporting data to SAS. This appears to occur only when Missing Data Codes are being utilized in the project. (Ticket #110278)

Version 11.2.3

- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into a field's value on a data entry form or survey page.
- **Change/improvement:** The Configuration Check page now checks to ensure that the "Email Address of REDCap Administrator" on the General Configuration page has a valid email entered. Without an email entered there, some features might not work correctly.
- Change: Updated setup instructions zip file for Clinical Data Interoperability Services by including a new CDIS Manual (PDF) in the zip file.
- Bug fix: When a PDF of a survey response is sent in a confirmation email after completing a survey, saved via the survey setting “Save a PDF of completed survey response to a File Upload field”, or saved via the e-Consent Framework in the File Repository, it would mistakenly not store the survey version of the PDF (containing the survey title and instructions) but instead would store the data entry form version of the PDF.
- Bug fix: When editing the value of the Secondary Unique Field in a longitudinal or repeating instance context, it might mistakenly log the change extra times unnecessarily. (Ticket #110740)
- Bug fix: Making a call to the Import Records API method when importing zero records might cause an Out of Memory error. (Ticket #110761)
- Bug fix: When using Internet Explorer 11, clicking on a slider field or matrix of fields might mistakenly cause the screen to scroll to the top of the page. (Ticket #111202)
- Bug fix: When using Internet Explorer 11, trying to expand/collapse a project folder on the My Projects page would fail to work due to a JavaScript issue. (Ticket #111553)

- Bug fix: The REDCap cron job named "AlertsNotificationsSender" might unexpectedly crash for PHP 8 in certain circumstances. (Ticket #110702)
- Bug fix: Since Twilio limits SMS messages to 1600 characters, to prevent errors from being returned from a failed request to Twilio for very long text messages, REDCap now automatically breaks an SMS into multiple parts if it exceeds the 1600 character limit. (Ticket #110440)
- Bug fix: When making API data imports without any data being imported (i.e., blank or missing value for the "data" API parameter), it might behave erratically and cause a PHP error. It now correctly returns the error message "No data was provided". (Ticket #110761)
- Bug fix: After copying a user role, a text box would mistakenly appear on the User Rights page below the instruction text.
- Bug fix: When exporting a PDF of an instrument with the character encoding set as Japanese (SJIS), for certain server configurations or PHP versions it might crash with a fatal PHP error. (Ticket #111593)
- Bug fix: When editing a user role in a project that contains Data Access Groups, it would mistakenly display the "Assign To DAG" drop-down list in the dialog, which should not be displayed when editing roles.
- Bug fix: When a project contains repeating events in which a report has filter logic to filter out specific repeating instances (e.g., [current-instance] <> "" and [current-instance] = [first-instance]), the report might mistakenly display no results or incorrect results when there is actually data to display. This does not affect repeating instruments but only repeating events. (Ticket #110896)
- Change: Added clarifying text regarding the behavior of a non-active Automated Survey Invitations in the ASI dialog in the Online Designer. (Ticket #111182)
- Bug fix: In a project using Twilio telephony services, any Automated Survey Invitations or manually-scheduled invitations that utilize the "Use participant's preference" option for the Invitation Type might mistakenly append the survey link to the message of the survey invitation, even when that is not desired. It now no longer appends the survey link automatically but instead sends the invitation using only the literal text defined by the user. (Ticket #111484)
- Bug fix: When a user's account expires after the account expiration time has passed, the email sent to the user to notify them of this might be slightly incorrect and might mention user sponsors even if the user does not have a sponsor. The user sponsor related language was removed in that case.
- Bug fix: The offline survey message that is defined on the Survey Settings page would mistakenly not perform any piping when being displayed on an inactive survey. (Ticket #111707)
- Bug fix: Fields with the @HIDDEN-PDF action tag would mistakenly be displayed in the PDF download of the instrument when using the PDF download option "Send to printer: select 'Save as PDF' for Printer/Destination". (Ticket #111718)
- Bug fix: If a calculated field in a longitudinal project has a cross-event calculation that contains an [X-event-name] Smart Variable, the calculation might mistakenly not get triggered when entering data on a form, survey, or via a data import.
- Bug fix: When using Twilio SMS or Voice Call services on a survey that has only one field that is a Descriptive field, it would mistakenly ask the Form Status complete question at the end of the survey. (Ticket #111799)

- Bug fix: When calling the surveyLink API method in which a space exists (not necessarily intentionally) at the beginning or end of the "record" parameter passed in the API request, it might cause the space(s) to mistakenly get stored in some parts of the database where the record name is stored, thus causing the Survey Login feature not to work for that particular record anymore. (Ticket #111002)

Version 11.2.4

- Bug fix: When downloading a Descriptive field attachment while on a survey page, it might mistakenly return an error message and prevent the participant from downloading the file.
- Bug fix: When downloading a file for a File Upload field or an attachment for a Descriptive field, in which that file is being counted via the @DOWNLOAD-COUNT action tag on another field, the download count would not get successfully incremented for the @DOWNLOAD-COUNT field when the file is downloaded on a survey page (as opposed to on a report or data entry form).
- Bug fix: When downloading a file for a File Upload field or an attachment for a Descriptive field, in which that file is being counted via the @DOWNLOAD-COUNT action tag on another field, it might mistakenly attempt to save the incremented value to a non-existent record (as seen in the logging) when the file is downloaded on a public survey that has not been saved yet (i.e., the record does not yet exist).

Version 11.2.5

- **Improvement/change:** Any HTML used in the value of a Text field or Notes field will no longer be escaped on a report (i.e., displayed as-is) but instead the HTML will be interpreted on the report to allow for the styling of text on the page. This means that while previous versions would have displayed the text value "Word" literally as "Word" (without quotes) on a report, it now instead displays "Word" as bolded text on a report. Note: This does not affect data exports or any pages other than reports.
- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into user-defined text. (Ticket #112003)
- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by uploading a malicious file to a File Upload field on a survey page or data entry form, and then trick someone into executing the file by providing them with a URL of specific end-point in the application in which to navigate.
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into the user-defined URL of a Project Bookmark. (Ticket #112021)
- Bug fix: When clicking the "Re-evaluate Alerts" button on the Alerts & Notification in a longitudinal project in which an alert is set to be triggered when an instrument status is complete and when the specified conditional logic is true, it would cause alerts to get triggered on events where the logic is true but where the instrument status is not complete. (TiBug fix: If a malicious user knows how to manipulate some AJAX requests for REDCap Messenger, they might be able

to post messages to Messenger threads to which they do not belong, including the ability to post to the General Notifications channel while not being an administrator.cket #111866)

- Bug fix: Fixed typo in email-related error message. (Ticket #112126)
- Bug fix: Fix for PHP 8 error message when viewing contributors of a survey response. (Ticket #112144)
- Bug fix: Logic (including branching logic, conditional logic, and calculations) might not get parsed correctly and thus might return an incorrect result if Smart Variables are used in the logic and also while an element in the logic has a blank value that appears on the left side of an equals sign - e.g., [user-dag-name] = 'vanderbilt' (assuming [user-dag-name] is blank). (Ticket #112010)
- Bug fix: When survey participants attempt to download a file belonging to a File Upload field while on a survey page, it might mistakenly display the error message "NOTICE: This file is no longer available for download". Bug emerged in the previous version of REDCap.
- Bug fix: If a calculated field is utilizing a date and datetime value that are used together in the same datediff() function, if the date value happens to be today's date, it might return an incorrect value (typically a value of "0"). (Ticket #112183)
- Bug fix: When a project is not using "Default Encoding" for "Character encoding for exported files" on the Edit Project's Settings page, calling the API Export PDF method might mistakenly return a corrupt, unopenable PDF file. (Ticket #112035)
- Bug fix: The Text-To-Speech functionality on survey pages did not work on mobile devices, iOS, or in the Safari web browser in previous versions. It should now work successfully for all platforms and browsers. (Ticket #111739)
- Bug fix: The Smart Variable [bar-chart] might mistakenly mislabel the groupings in a bar chart that uses color grouping using a multiple choice field if there are no records that have a value for a specific choice for the multiple choice field. For example, if a grouping field has choices "One", "Two", and "Three", in which no records in the project have "Two" selected, then the resulting bar chart might mislabel all the "Three"s as "Two".

Version 11.2.6

- **Improvement:** On the External Modules page in a project, users with appropriate privileges may now import and export the configuration settings for any module that is enabled in the project. This feature functions as a convenience by allowing users to easily migrate the configuration settings of one or more modules to another project that has the same module(s) enabled.
- **Improvement:** If a user is not assigned to a Data Access Group in a project, the user will now see a new "[No assignment]" option in the "Displaying Data Access Group" drop-down list on the Record Status Dashboard, in which selecting that option will display only records that have not been assigned to any DAG.
- **Change/improvement:** "Previous instrument" and "Next instrument" buttons were added at the top right of the Online Designer field-view page to allow easier navigation between instruments. (Ticket #101057)
- **Minor security improvement:** Removed the usage of the PHP function "mt_rand" in the source code, and replaced it with the more cryptographically secure PHP function "random_int".
- Bug fix: When copying a project, it mistakenly does not copy the Data Entry Trigger URL into the new project. (Ticket #112269)

- Bug fix: When a project has the setting "Delete a record's logging activity when deleting the record?" enabled on the Edit A Project's Settings page, it would mistakenly not display the checkbox option to allow users to additionally delete a record's logging when deleting the record itself via the Record Home Page. (Ticket #112239)
- Bug fix: When downloading a CSV export of various things in REDCap (e.g., Notification Log export, Data Access Groups export), it might fail to add a BOM (Byte Order Mark) to the CSV file if the file contained UTF-8 characters. The Byte Order Mark is required to open UTF-8 encoded CSV files correctly in certain spreadsheet applications, such as Microsoft Excel. (Ticket #112239)
- Bug fix: If all the discrepancies of any Data Quality rule have been excluded, it would mistakenly not display the "view" link next to the rule (even though it returns "0" results) after the rule had finished running. It is necessary to still display the "view" link so that users can click it in order to view the exclusions inside the dialog. (Ticket #112294)
- Bug fix: When clicking "Cancel" inside the Logic Editor dialog, it might mistakenly revert the value of the text box being modified to the value of another text box that was previously edited via the Logic Editor while on that same page. (Ticket #101200b)
- Bug fix: When exporting and then importing an instrument via the Instrument Zip file in the Online Designer, in which the instrument is enabled as a survey, it might fail to import the instrument in the zip file successfully. (Ticket #112346)
- Bug fix: Any generated zip files would mistakenly fail upon creation and thus return an empty zip file when using Google Cloud Storage as the File Storage Method (as defined on the File Upload Settings page in the Control Center).
- Bug fix: The developer method REDCap::getSurveyQueueLink() would mistakenly always return NULL.
- Bug fix: Multiple blank rows in the table displayed on the survey queue page might mistakenly take up too much room on the page. (Ticket #110914)
- Bug fix: When a survey is set to "Auto-continue to next survey" in the Survey Termination Options on the Survey Settings page while the other survey setting "Prevent survey responses from being saved if the survey ends via Stop Action?" is set to "Do NOT save the survey response...", the survey would mistakenly continue to the next survey if the participant triggered the survey to end via a Stop Action.
- Bug fix: When viewing the data entry form for a survey-enabled instrument, if the Compose Survey Invitation dialog is opened on the page, then closed, and then opened again without refreshing the page, the rich text editor in the dialog would mistakenly not be initiated anymore. (Ticket #96574)
- Bug fix: Custom Application Links (which are to be displayed on the left-hand project menu) were mistakenly only visible to users with User Rights privileges in the project. (Bug #112651)

Version 11.3.0

- **Improvement:** More options/parameters for the API Delete Record method - Users can now specify instrument, event, and/or repeat_instance to delete the data from a specified instrument, event, or repeating instrument/event for the records specified in the API request. In previous versions, the only option was to delete the entire record.

- **Change/improvement:** When an administrator is reviewing a user's submitted production changes for Draft Mode on the "Project Modification Module" page and then clicks the "Compose confirmation email" button in the blue "Administrator Actions" box, the email template displayed in the dialog now contains clearer wording to help users better understand how to respond. This helps make the production change process faster and more efficient.
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way as user-defined text in REDCap Messenger.
- Change: If new instruments are created in a project while in production status, all users and user roles will no longer automatically get full "View & Edit" rights to that instrument for their Data Viewing Rights but instead will receive "No Access (Hidden)" rights by default for new instruments. When in development status, the instrument-level rights still defaults to "View & Edit" for new instruments. This change helps improve security when a project is in production to ensure that users do not accidentally gain access to data that they should not see if new instruments are still being added to the project. (Ticket #54096)
- Change/improvement: When viewing the Record Status Dashboard in which one or more repeating instrument tables are displayed at the bottom of the page, if any of the tables were collapsed on a previous visit of the page, the page will load much faster, especially for records containing hundreds or more repeating instances.
- Bug fix: Some email addresses that are entered into the value of a Text or Notes field might mistakenly not get converted into a clickable "mailto" link when viewed on a report.
- Bug fix: When exporting and importing a Project XML file, the Survey Queue setting "Keep the Survey Queue hidden from participants?" (if enabled) would mistakenly not get enabled in the new project created from the XML file.
- Bug fix: When calling the Export Records API method and providing the "fields" parameter, in which the parameter's value only contains the variable names of one or more Descriptive fields in the project, it would mistakenly return data for all fields instead.
- Bug fix: When using the DDP Custom feature, required parameters (i.e., user, project_id, redcap_url) were mistakenly not being sent to the custom metadata web service.
- Bug fix: Fields with the @DEFAULT action tag might mistakenly not get prefilled with the default value on the page if any fields on that same instrument contain saved data and have the @CALCDATE or @CALCTEXT action tag. (Ticket #110331)
- Bug fix: If the "Save & Return Later" feature is enabled for a survey in a project that also has the "Survey Login" feature enabled, if a participant clicked the "Save & Return Later" button on a public survey, it would mistakenly display information about a Return Code, which is actually not needed and is confusing because it is inaccurate.
- Bug fix: If a user is requesting that an administrator generate an API token for them, it would mistakenly not log the admin's action of generating the token. Technically, the action was being logged but was just not available on the Logging page in the project for which it was requested.
- Bug fix: When using multiple action tags together on a single field, in which the action tags have values inside single quotes or double quotes (e.g., @NONEOFTHEABOVE='1,2,3' @HIDECHOICE='4'), the action tags might mistakenly not get parsed correctly, thus causing them not to function correctly in some cases. (Ticket #113018)

- Bug fix: When the project-level setting "Prevent branching logic from hiding fields that have values" is enabled, it might cause an error popup to appear on survey pages when a field with a value is trying to be hidden by branching logic. (Ticket #113054)

Version 11.3.1

- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way into the URL for the project Logging page.
- Change: All cookies created on the client side (JavaScript) will now have the same "SameSite" and "Secure" attributes as cookies created on the server side (PHP). This helps improve general security.
- Bug fix: When using the Clinical Data Interoperability Services, specifically the CDP Field Mapping page, some translated mappable fields might not display correctly on the page and would mistakenly be garbled.
- Bug fix: If the user clicks the "Piping" or "Smart Variables" help buttons inside the “Add new alert” dialog on the Alerts & Notifications page, and then the user hits their ESC key on their keyboard, it would mistakenly close the “Add new alert” dialog (i.e., the dialog on the bottom) rather than the dialog on the top. (Ticket #112745)
- Bug fix: When using the "Save a PDF of completed survey response to a File Upload field" feature, the resulting PDF that gets saved to the File Upload field would mistakenly hide (not display) any fields in the PDF containing the @HIDDEN or @HIDDEN-SURVEY action tag. In that particular PDF export, only fields with @HIDDEN-PDF should be hidden (not displayed) in the PDF. (Ticket #113197)
- Bug fix: For projects with Data Access Groups, users that are not currently assigned to a DAG would mistakenly not see the DAG filter drop-down displayed on the Logging page. That drop-down should normally be displayed for users not assigned to a DAG. (Ticket #113188)
- Bug fix: When using Duo as a Two Factor Authentication option, it would mistakenly initiate the Duo 2FA process before the user even selects the Duo option from the list of choices to use when logging in. (Ticket #113193)
- Bug fix: When deleting an instance of a repeating event on the Record Status Dashboard, it might still cause that empty event instance to be displayed in reports and data exports. (Ticket #17859b)
- Bug fix: Due to a fatal PHP error when using certain versions of PHP, attempting to upload a signature on a survey or data entry form would mistakenly fail. (Ticket #113234)
- Change: Any multi-select drop-downs that are enhanced using the Select2 JavaScript library (e.g., the "Email To" field when creating/editing an alert) now display a down arrow on their right edge to better indicate that they are a clickable drop-down list.
- Bug fix: Real-time piping (i.e., performed via JavaScript after the page has already loaded) might mistakenly truncate the piped text in certain cases where a "<" character is used in the piped field's value. (Ticket #113237)
- Change: The REDCap Install page now returns a notice to anyone who accesses it that the page is no longer functional or available if it detects that REDCap has already been fully installed.

- Bug fix: If the File Version History feature was disabled at the system level but was still enabled for an individual project (according to the value of that setting in the redcap_projects database table), the feature might mistakenly function in some capacity in the user interface within the project but might cause issues for other features on the page. If this feature is disabled at the system level, it should by default also be disabled in all projects. (Ticket #113131)
- Change: In all outgoing emails, the "font-size" attribute for the "body" tag is no longer explicitly defined in the HTML of the email. This should have little (if any) effect on the appearance of emails sent from REDCap.
- Bug fix: On the Alerts & Notifications page, some alert settings might mistakenly not get saved when changed on an existing alert. (Ticket #113363)
- Bug fix: When editing a user's privileges on the User Rights page, the expiration date text box might mistakenly not display the full date because the text box is too narrow. (Ticket #113357)
- Bug fix: When the Table-based authentication setting "Force users to change their password after a specified number of days" has been enabled while also using Two Factor Authentication, it might mistakenly display the "Password will expire soon" popup warning on top of the 2-step login, in which clicking the "Change my password" button might cause issues with the 2-step login process for the user. It now still displays the popup dialog, but it functions now more as an information-only warning to let users know that they need to change their password as soon as they finish the login process. (Ticket #113393)
- Bug fix: When deleting a file for a Signature field or File Upload field on a data entry form or survey page, it was mistakenly deleting the file in the backend database when the user clicked the "Remove file" link when it should instead only be deleting the file after they click "Remove file" *and also* then save the page via a Save button. This fix makes it consistent with how files are saved when uploaded, in which the add/delete action is finalized only when the Save button is clicked on the page. (Ticket #113058)
- Bug fix: The email test on the Configuration Check page might mistakenly fail and display a false negative for certain email server configurations despite the fact that emails are able to be sent successfully out of REDCap in all other places in the application.
- Bug fix: When the "URL shortening service" setting is disabled on the Modules/Services Configuration page in the Control Center, it would still mistakenly display the option to create a custom/short URL for public reports and public project dashboards. It should not be displayed as an option in those places when disabled at the system level. (Ticket #112895)
- Bug fix: When viewing the draft mode changes for a production project, any field with branching logic that is being modified might mistakenly get truncated or display incorrectly on the page if the branching logic contains "<>". (Ticket #113237b)
- Bug fix: When navigating in a project on a mobile device, in which the user has been assigned to multiple Data Access Groups via the DAG Switcher, the blue toolbar at the top of the page for switching DAGs would mistakenly not be visible. (Ticket #113459)
- Bug fix: In a longitudinal project, Data Quality rules A and B might mistakenly not return a discrepancy when a field is missing a value in which the field's branching logic contains a Smart Variable and also does not have a unique event name or X-event-name prepended to all the field variables used in the rule logic. (Ticket #111474)

Version 11.3.2

- **Improvement:** The Project Revision History page now displays icons next to each production revision and snapshots, and after being clicked, will display options to compare that revision/snapshot with any other revision/snapshot in the project. (This feature represents the integration of the "Data Dictionary Revisions" external module created by Ashley Lee at BC Children's Hospital Research Institute).
- **Improvement:** When using the eConsent Framework in a project, the "PDF Survey Archive" tab on the File Repository page now displays a "Download all" button that will download all PDF files displayed on the page in a single zip file. Additionally, there is a record filter drop-down list and a "file type" drop-down list, which distinguishes between general "PDF Auto-Archiver" PDFs and "eConsent Framework" PDFs. Note: If a user is in a Data Access Group, they will only be able to download and filter on records in their DAG.
- **Medium security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way as user-defined text in various places.
- Bug fix: Fix for PHP 8 compatibility issue when entering data on a repeating instrument in specific cases. (Ticket #113507)
- Bug fix: When creating a new instrument via the Online Designer, the "Close" button in the success dialog would mistakenly say "Close2" instead. (Ticket #113587)
- Bug fix: The discrepancy result for Data Quality rules A and B would mistakenly display fields that exist on instruments for which the current does not have Data Viewing Rights. (Ticket #113589)
- Bug fix: If a checkbox field contains an invalid/stale value (i.e., not a currently existing choice) in the database backend, and then a Missing Data Code is saved for the field via a data entry form, both the invalid/stale value and the missing data code value will stay stored in the backend, and the data entry view mistakenly will not show that a missing data code has been saved for the field. (Ticket #113763)

Version 11.3.3

- Change: Renamed the "My Profile" page to "Profile".
- Change/improvement: Added “ICD-10 Australian Modification” to the list of parsed coding systems in the Condition resource for Clinical Data Interoperability Services (both CDP and Data Mart).
- Bug fix: Clicking the download link for a File Upload field that is utilized in another field's @DOWNLOAD-COUNT action tag would mistakenly not trigger calculations or branching logic on the page.
- Bug fix: When performing cross-form/cross-event calculations (via data entry forms and surveys) or auto-calculations (via data import) - including both calc fields and @CALCTEXT fields - in a longitudinal project, in some cases the calculated value would mistakenly be saved in events that currently have no data. Calculated fields should only operate and save a value in events that already contain data. (Ticket #113972)
- Bug fix: When using the eConsent Framework for one or more surveys in a project, the PDF Survey Archive tab in the File Repository might mistakenly not display the "Download All" button unless at least two records exist in the project. Additionally, the drop-down filter to view "only

eConsent files" would mistakenly display zero records after being selected if fewer than three records exist in the project. (Ticket #114091)

- Bug fix: When using the Double Data Entry module, instead of seeing the correct colored form status icons, a user that is DDE person 1 or 2 would mistakenly see all gray status icons for instruments on the Record Status Dashboard and on the left-hand menu while viewing a record. (Ticket #114068)
- Bug fix: Conditional logic used for a survey in the Survey Queue might mistakenly not evaluate correctly in specific cases, such as when using certain Smart Variables (e.g., [record-dag-name]). (Ticket #114181)
- Bug fix: When using the [survey-link] or [survey-url] Smart Variables in a longitudinal project in which a literal instance number is appended to it (e.g., [event_1_arm_1][survey-link:my_survey][2]), it would mistakenly always return the link/URL of the first instance instead of the correct repeating instance.
- Bug fix: When piping a datetime- or time-validated Text Box field on the same page as where the field itself is located while using the ":ampm" piping parameter, it might mistakenly pipe the value as-is instead of converting it to the AM/PM format. Additionally, it might mistakenly pipe the literal text "undefined:NaNam" if the field's value is set as blank/null in real time while on the page. (Ticket #114247)
- Bug fix: The Custom Application Links page in the Control Center might crash due to a PHP compatibility error when using PHP 8.0. This might also occur when downloading the User-DAG Assignments CSV file on the User Rights page. (Ticket #114292)
- Bug fix: Downloading the User-DAG Assignments CSV file on the User Rights page might produce an incorrectly structured CSV file. (Ticket #114292)

Version 11.3.4

- **Improvement:** When executing many data quality rules at once, the total time to finish all the rules occurs 3X faster. Instead of running only one rule at a time in a serial fashion, REDCap now executes three rules simultaneously when clicking the "All", "All except A&B", and "All custom" buttons at the top of the Data Quality page.
- **Improvement:** SQL fields can now be used in the following Smart Charts: bar-chart, pie-chart, and donut-chart. (Ticket #107115)
- **Improvement:** SQL fields can now be used as Live Filters in reports. (Ticket #8791)
- Bug fix: When using a Text Box field with date, time, datetime, or datetime w/ seconds validation as the x-axis field for a [scatter-plot] Smart Chart, the chart would mistakenly not display the data correctly. (Ticket #107721)
- Change: Added the "Microsoft Authenticator" mobile app as a two-factor authentication method that is equivalent to using the "Google Authenticator" mobile app.
- Change: When viewing a report while using a mobile device, it will no longer enable the floating table headers or floating first column automatically for the report table. This was changed because the floating headers/column made it difficult to view parts of a report while on a mobile device with a small screen.
- Bug fix: Slider fields that have HTML inside the slider labels might mistakenly not display correctly in a downloaded PDF of an instrument.

- Bug fix: When using the @DOWNLOAD-COUNT action tag on fields displayed on a report, if the download trigger field exists on that same report, then attempting to download the file would cause a JavaScript error on the page.
- Bug fix: If a field is used as a Live Filter in a report, in which some values for that field contain spaces or other characters that might get URL-encoded, it would mistakenly cause the Live Filter not to return any values in the report.
- Bug fix: The real-time logic validator in the Logic Editor popup might mistakenly fail and would return a false positive saying that the logic is invalid if the logic contains certain Smart Variables, such as [record-name].
- Bug fix: When using the API Playground and selecting certain drop-downs, such as the Forms drop-down list, they might mistakenly result in an error from the API. This only affects the API Playground and does not affect the API in general. (Ticket #114563)
- Bug fix: When a user has been assigned to multiple Data Access Groups via the DAG Switcher, the User Rights page would mistakenly not correctly display how many DAGs to which they are assigned if the user's username contained a capital letter when they were added to the project. (Ticket #114550)

Version 11.4.0

- **Improvement: New "Banned IP Addresses" page** in the Control Center allows administrators with "Manage User Accounts" privileges to add or remove IP addresses to/from the blocklist of banned IP addresses for the REDCap installation. The IP addresses listed on that page are IPv4 or IPv6 addresses that have been blocked manually using that page or have been banned automatically via the Rate Limiter feature (enabled on the General Configuration page in the Control Center).
- **Improvement:** When using the "Reason for Change" feature in a project, a new button is displayed underneath each "reason for change" textbox on the Data Import Tool summary page. Users can simply click the button to copy the text to all other "reason for change" textboxes on the page, thus saving lots of time of having to add text to each individually. This feature is the integration of Luke Steven’s “Copy Change Reason” external module, which will be automatically disabled at the system-level when upgrading to (or past) REDCap 11.4.0 to prevent any conflicts.
- **Improve: New data export option - Export blank values for gray instrument status**
    - All instrument complete status fields having a gray icon can be exported either as a blank value or as "0"/”Incomplete”. In previous versions, they could only be exported as “0”. By default, they are now exported with a value of “0”, but this option can be changed via a drop-down option in the “Advanced data formatting options” section of the data export dialog.
    - When exporting the Project XML file with both metadata & data, the option to export gray instrument status as a blank value will be preselected by default, whereas in other data export contexts (e.g. My Reports & Exports page), the option to export them as “0” will be preselected by default.

    - The API method “Export Records” has a new optional parameter “exportBlankForGrayFormStatus” that can accept a boolean (true/false) with default value = false, and it functions the same as its equivalent data export option in the user interface.
    - Note: Exporting gray instrument statuses as blank values is recommended if the data will be re-imported into REDCap. For example, when users export a Project XML file for a project and then create a new project with it, all the gray instrument status icons will be preserved in the new project, whereas in previous versions they were all converted into red status icons.
- **Improvement:** New option “Allow normal users to edit their primary email address on their Profile page” on the User Settings page in the Control Center. This setting will be enabled by default, but an admin can disable it if they wish to prevent any users from modifying their primary email address for their user account.
- **Improvement:** The developer methods REDCap::getSurveyLink() and REDCap::getSurveyQueueLink() now have an optional parameter "project_id" that (when provided) allows one to call the method outside of that target project's context. If project_id is not explicitly provided, then the methods must still be called within their target project's context.
- **Minor security fix:** A Cross-site Scripting (XSS) vulnerability was discovered where a malicious user could potentially exploit it by inserting HTML tags and/or JavaScript event attributes in a very specific way as user-defined text on the Project Setup page.
- **Major bug fix:** When a repeating instrument has data entered on multiple repeating instances, and then afterward the instrument is made to no longer be repeatable, then any new data entered on that data entry form for fields that already have data on other instance might mistakenly get stored in the wrong repeating instance (i.e., get orphaned in the "redcap_data" database table) and thus would fail to be seen when reloading the form again. (Ticket #115308)
- Improvement/change: New LOINC codes were added for CDIS-related functionality.
- Change: All CDIS-related features and functionality now utilize a centralized set of assets in the code, rather than each feature having only their own private set of assets. This change reduces the entire size of the REDCap code by half, thus saving lots of space on the REDCap web server.
- Various updates and fixes for the External Module Framework, such as the following: PID parameter safety improvements, Documentation updates, Prevented unnecessary errors from the Portable UTF-8 library's auto-redirection, Increased the setting lock timeout, and Fixed a getSafePath() case with absolute paths.
- Bug fix: When a user creates a new alert, the "Email From" address is now validated on the server side to ensure it is valid and belongs to a user in the project (or belongs to an administrator, if the current user is an admin that is not a user in the project).
- Bug fix: The green label "Field is embedded elsewhere on page" mistakenly doesn't show up for SQL fields on the Online Designer (Ticket #114889).
- Bug fix: For some REDCap installations, the redcap_new_record_cache database table might have an incorrect table collation.
- Bug fix: When clicking any of the "All..." buttons at the top of the Data Quality page to execute multiple data quality rules, some rules might randomly return an error message by mistake. Bug emerged in REDCap 11.3.4 Standard. (Ticket #102636)

- Bug fix: For surveys that have a "Size of survey text" setting set to "Large" or "Very Large", any slider fields on the survey page that display their number value to the right might mistakenly display the value textbox as too narrow in certain situations. (Ticket #114920)
- Bug fix: When using the @CALCDATE action tag with certain values entered for the date/datetime field used in the calculation, it might cause the page to unexpectedly crash with a fatal PHP error when running PHP 8. (Ticket #114831)
- Bug fix: The API Tokens page in the Control Center would mistakenly not display the "Last Used" timestamp for some users displayed in the tables on the page. Also, some AJAX calls that load the drop-down lists on the page might fail in certain cases. Additionally, the "Manage API tokens by Project" drop-down would mistakenly not display its full list of options when the page initially loads but only fully loads after an option is selected from it. (Ticket #114834)
- Bug fix: When uploading a CSV file of Automated Survey Invitations in the Online Designer, any datetimes set for the "Send on exact date/time" setting (including reminders) might mistakenly not get saved correctly. (Ticket #115024)
- Bug fix: Page-view information for plugins and external modules were mistakenly not getting stored in the redcap_log_view table and thus such information was not being displayed on the MySQL Dashboard page in the Control Center.
- Bug fix: The feature that detects database structure issues might mistakenly create false negatives in specific cases where a database table's collation isn't correct, thus allowing the issue to go unnoticed.
- Bug fix: The "Manage All Project Tokens" tab on the API page in a project might mistakenly fail to load the table of users.
- Bug fix: When using [aggregate-X] Smart Functions in branching logic or calculations, an error message might mistakenly display on the page saying that errors exist if any of the [aggregate-X] functions return a blank value. (Ticket #115235)