Version 12.4.4 (released on 2022-06-24)
CHANGES IN THIS VERSION:

- Improvement: The Multi-Language Management setup page now has an option to "Export or import general settings". This includes which languages are set as active, default, or fallback, which fields and survey settings are excluded, as well as the settings on the Alerts tabs and Settings tab. Note: The export/import option will appear when at least one language has been created in the project. This option is available as a JSON file only for import/export.

Version 12.4.3 (released on 2022-06-17)
CHANGES IN THIS VERSION:

- Improvement: To improve page-loading performance of the Data Access Groups page, the DAG Switcher table at the bottom of the page will no longer be displayed when the page is initially loaded if the number of project users X the number of DAGs is greater than 5000. If the threshold is reached, then a big button saying "Display the DAG Switcher" will be displayed, and after clicking it, it will then display the DAG Switcher table. This will improve overall load time of the page in extreme cases. (Ticket #128578)
- Change/improvement: The red "Action Tags" button was added inside the Logic Editor dialog to make it easier to reference the Action Tags documentation while the Logic Editor is open. (Ticket #120079)
- Change/improvement: Below the instructional paragraph on the Participant List page, new text has been added that lists the "Survey Response Status" as being either "Anonymous*" or "Not Anonymous" along with a clickable help link that opens a dialog that discusses in-depth why/how survey responses in the project are being collected in an anonymous or non-anonymous fashion based on the project's current configuration settings. This text was added to provide more transparency and awareness to users who might not realize that they are collecting survey data in an anonymous or non-anonymous fashion, which could ultimately have implications on processes in their project later on.

Version 12.4.2 (released on 2022-06-10)
CHANGES IN THIS VERSION:

- **Improvement:** New "Multi-Language Management" video (9 minutes) added to the MLM setup page and the Training Videos page.

Version 12.4.0 (released on 2022-05-20)
CHANGES IN THIS VERSION:

- **New feature:** Calendar Sync
  - Users may sync their REDCap project calendar or perform a one-time import of their project calendar events to external calendar applications such as Google Calendar, Outlook, Office 365, Zoho, Apple Calendar, or any application that supports iCal or ICS files. They may choose one of the two options below to sync or import their project calendar events to an external calendar application.
    1. Live calendar feed: Add calendar from URL/Internet - A unique web address will be displayed in a dialog on the Calendar page, in which the URL represents a real-time live feed of the REDCap project calendar. Users may copy the URL to paste it as the calendar URL in their calendar application using the option "Add calendar from URL/Internet". This will subscribe their external application to the REDCap project calendar. Privacy Note: This calendar feed URL on the Calendar page is unique to the user in the project. So if the user gets expired, removed from the project, or deleted from the system, their unique calendar feed will go blank and will not output anything anymore (for privacy purposes).
    2. One-time import: Download ICS file - Download and open the calendar ICS file below to import REDCap calendar events manually into the calendar application on your computer, or upload the file to a web-based calendar service. Notice: This is not a live feed but a one-time import. Thus, any new events added to the REDCap calendar in the future will not be automatically added to the external calendar application.
  - Feed-syncing Notice: Different calendar applications have different refresh rates. So if new events are added to the calendar in REDCap, they may not immediately appear in the external application that is consuming the feed but will appear after the next refresh interval, which might be some time later that day or the next day (depending on the calendar application). Additionally, the calendar feed represents a one-way feed. This means that while changes made to the calendar in REDCap will automatically show up in the external calendar application, users will not be able to modify them in the external calendar application because they will be read-only.
  - Privacy Note: When viewing events from the Calendar page's feed or downloadable ICS file, any data from Identifier fields will be automatically removed from the feed/file (e.g., if identifier fields are included in the Custom Record Label or Secondary Unique Field, or if the record name is an identifier), in which their data will be replaced with the text "**DATA REMOVED**".
  - New calendar-specific Smart Variables
    1. [calendar-url] - The web address (URL) of the calendar feed or downloadable ICS calendar file belonging to the current record.
    2. [calendar-link:Custom Text] - The HTML web link that, when clicked, will navigate to the calendar feed or downloadable ICS calendar file belonging to the current record. 'Custom Text' is an optional parameter whereby you can specify

the visible link text, and if it is not provided, it defaults to simply displaying the URL as the link text.

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

ensure that the service continues to work for your REDCap project. If your SendGrid account runs out of funds, the SendGrid services in REDCap will cease to function. You may reference SendGrid's pricing page to get their latest pricing.
  - Thanks to Remi Frazier and Kaizen Towfiq at University of California San Francisco for their code contributions, which made this new feature possible.

Version 12.3.3 (released on 2022-05-12)

CHANGES IN THIS VERSION:

- Change/improvement: Hyperlinks created in the rich text editor will now default to being opened in a new tab/window rather than defaulting to being opened in the current tab/window. This default value can be changed by the user when saving/inserting the link. (Ticket #124813)
- Change/improvement: The rich text editor might be finicky when dealing with non-Latin characters, such as converting them to HTML character codes when enabling and then disabling the rich text editor in the Edit Field popup in the Online Designer.**Version 12.3.2 (released on 2022-05-06)**

CHANGES IN THIS VERSION:

- **Improvement:** New field validation type: "Phone (UK)". This validation type supports phone numbers from the United Kingdom (e.g., +44 7911 123456, +447911123456). Note: This validation type will be disabled by default after installing or upgrading, but it can be easily enabled on the Field Validation Types page in the Control Center. Thanks to the Field Validation Committee for donating this.
- Change: When deleting unsent/scheduled survey invitations on the Survey Invitation Log, the checkbox "Permanently cancel these invitations?" that appears in the delete invitation dialog now defaults to being unchecked. In previous versions, the checkbox was checked by default, which could sometimes lead to disastrous consequences if the user did not read all the text carefully before deleting the invitation. (Ticket #127156)

Version 12.3.1 (released on 2022-04-29)

CHANGES IN THIS VERSION:

- **Improvement:** In many places that display a drop-down list of records (e.g., Logging page, Email Logging, Field Comment Log, Data Quality page, ad hoc calendar event popup, Alerts & Notifications Log, Survey Notification Log), it will display a normal drop-down list if the project contains 5000 records or less, and if the project contains more than 5000 records, it will instead automatically revert to displaying an auto-suggest textbox to allow the user to manually enter the record name (rather than attempting to display an extremely long drop-down). This should make these pages load much faster and also make them easier to use in projects containing many records.
- Change/improvement: If an [aggregate-X] Smart Function is used inside a calculation or in branching logic, the function is no longer subject to the minimum data point threshold when viewing a survey page. In previous versions, under certain situations this could lead to a calculation/branching logic error on the survey page when too few data points had been entered. Note: If the Smart Function is being utilized for piping on a survey page, it is still subject to the minimum data point threshold though (i.e., different behavior for piping vs branching/calc). (Ticket #113901)

- Change/improvement: A value of "0" can now be used for the setting "Minimum number of data points required to display Smart Charts..." on the system-level "User Settings" page and on the project-level "Edit a Project's Settings" page. Previous versions would not allow "0" but would allow "1" as the smallest possible value. (Ticket #113901)
- Change: Added a "Contact REDCap administrator" link near the top of the project left-hand menu to provide a secondary place for users to easily contact their local administrator since the blue "Contact REDCap administrator" button at the bottom of the menu is often not visible on many pages if the menu is very long. Both the existing blue button and this new link function exactly the same. Note: The blue button was not removed but has been kept as a secondary way for users to contact their admin.

Version 12.3.0 (released on 2022-04-22)

CHANGES IN THIS VERSION:

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

Version 12.2.9 (released on 2022-04-08)
CHANGES IN THIS VERSION:

- Improvement/change: The Multi-Language Management setup page is slightly less restrictive now while in production status. For example, users may now export language configurations while in production even when not in draft mode.

Version 12.2.6 (released on 2022-03-03)
CHANGES IN THIS VERSION:

- **Improvement:** When scrolling down the page in the Online Designer when adding/editing fields, an up-arrow image will appear at the bottom right of the page that (when clicked) will quickly scroll the page back to the top.

Version 12.2.5 (released on 2022-02-25)
CHANGES IN THIS VERSION:

- **Improvement:** Sub-sections on the "Help & FAQ" page can now be accessed via hyperlinks near the top of each section. Previously there was a drop-down for this, which was slightly slower. Having sub-section links near the top of the page should make it faster for users to jump to a specific section.
- **Improvement:** The Multi-Language Management setup page now displays a download option for each instrument under the Forms/Surveys tab to allow users to export->import the translations for that single instrument to another project that has the same instrument with the same fields and variable names.
- **Improvement:** The Multi-Language Management setup page now displays the Default text above (rather than below) the input text box for each translatable item. This reversal appears to be more intuitive for users as they translate each element.
- **Improvement:** In the "Compose Survey Invitations" dialog on the Participant List page, the Actions drop-down for auto-selecting checkboxes for participants in the participant list now contains a new option: "Check Not Responded and Partial Response".

Version 12.2.4 (released on 2022-02-21)
CHANGES IN THIS VERSION:

- **Improvement:** When using Multi-Language Management, in which some of the Default language text has changed since the text was translated, the new "Review Changed Items" dialog on the MLM page will now display an "Export" option to export as JSON or CSV all the translated items that need to be reviewed and/or retranslated.
- **Improvement:** If the Multi-Language Management feature is disabled for a project, it will now show a red notice at the top of the MLM page.

Version 12.2.3 (released on 2022-02-18)
CHANGES IN THIS VERSION:

- **Improvement:** The Codebook now contains a "Field Finder" to allow users to quickly search for a field by keyword or phrase in the field label or by variable name. Also, the gray "Instrument Name" rows in the table will float at the top of the page while scrolling so that it is always apparent the instrument to which a field belongs. Additionally, when scrolling down the page, an up-arrow image will appear at the bottom right of the page that (when clicked) will quickly scroll the page back to the top.

- **Improvement:** When using Multi-Language Management, it will now display a list of possible issues to users when entering the page if any elements have been modified since they have been translated. For example, if a field label is translated, and then a user modifies the Default language text via the Online Designer, the MLM page will display a warning in a popup dialog that will ask the user to confirm that the current translation is okay or else to provide a new translation to match the updated Default text. This will help notify users about potential issues with their translations to keep them updated if they are still modifying the Default language text in the project.
- **Improvement:** Piping can now be performed inside the value of the @PLACEHOLDER action tag - e.g., @PLACEHOLDER="[first_name] [last_name]".
- Change/improvement: Two new LOINC codes added to CDIS mapping.

Version 12.2.2 (released on 2022-02-11)
CHANGES IN THIS VERSION:

- **Improvement:** Each tab on the "Help & FAQ" page now has a drop-down list of subsections that, when selected, will auto-scroll the webpage down to that subsection on the page.
- **New feature:** When using the survey setting "Save a PDF of completed survey response to a File Upload field", users can now optionally set this feature to store the translated version of the PDF if the Multi-language Management feature is being utilized for the survey. This can be enabled by checking the "Store the translated version of the PDF" checkbox below the "Save a PDF…" setting on the Survey Settings page for the desired survey. (Ticket #121955)

Version 12.2.1 (released on 2022-01-28)
CHANGES IN THIS VERSION:

- **Improvement:** When performing a keyword search on the "Help & FAQ" page, it now displays in red a count of keyword matches for each category in the tabs near the top of the page. Previously, the user would have to click on each tab in order to know if there were any keyword matches in that particular category.
- Change: For automated survey invitations and alerts that are using the date/datetime field option that determines the timing of when the invitation/alert should be sent, some extra clarifying text has been added to the popup/popover instructions that explains that modifying the value of the date/datetime field will have no effect on invitations/alerts that have already been scheduled.

Version 12.2.0 (released on 2022-01-25)
CHANGES IN THIS VERSION:

- **New feature: Instrument-level Data Export Rights**
    - Users may specify instrument-level privileges regarding a user's data export capabilities on the User Rights page in a project. A user may be given "No Access", "De-Identified", "Remove All Identifier Fields", or "Full Data Set" data export rights for EACH data collection instrument. This improvement will make it much easier to match a user's Data Exports Rights with their Data Viewing Rights, if you wish, and will give users more granular control regarding what data a user can export from your project.

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

- **New feature: Survey Start Time and related Smart Variables**
  - REDCap now collects when participants begin a survey (i.e., the initial time the survey page is opened). Going forward, any responses collected (partial or completed) will have their start time displayed at the top of the data entry form when viewing the response. NOTE: If the start time is a blank value, it implies that the response began while on an earlier version of REDCap when start times were not yet collected.
  - New Smart Variables for Survey Start Date/Time: Users can access the start time via piping by using the new Smart Variables [survey-time-started:instrument] and [survey-date-started:instrument], which can be used inside the @DEFAULT or @CALCTEXT action tags, among other places. If users wish to have them return the raw value, which will be in 'YYYY-MM-DD HH:MM:SS' format and would be more appropriate for conditional logic or calculated fields, simply append ':value' after the unique instrument name - e.g., [survey-date-started:instrument:value].
  - New Smart Variables for Survey Duration: Users can obtain the total amount of time that has elapsed since the survey was started (in seconds, minutes, etc.) by using [survey-duration:instrument:units] and [survey-duration-completed:instrument:units]. The Smart Variable [survey-duration] represents the difference between the survey's start time and either its 1) completion time (if completed) or 2) the current time (if not

completed), whereas [survey-duration-completed] represents the difference between the survey's start time and completion time, in which a blank value will be returned if the survey has not been completed. Options for 'units': 'y' (years, 1 year = 365.2425 days), 'M' (months, 1 month = 30.44 days), 'd' (days), 'h' (hours), 'm' (minutes), 's' (seconds).

Version 12.1.0 (released on 2022-01-07)

CHANGES IN THIS VERSION:

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