REDCap 12.4.7 LTS Changes and Improvements:

- **Calendar Sync** – Users may sync their REDCap project calendar or perform a one-time import or set up a real-time feed of their project calendar events to an external calendar applications such as Google Calendar, Outlook, Office 365, Zoho, Apple Calendar, or any application that supports iCal or ICS files.

- **Survey UI Tweaks Integration** – Several of the features in the Survey UI Tweaks external module have been integrated into REDCap. Users can now use many of the features of the Survey UI Tweaks external modules such as custom width of survey page, font resize and more without the need to activate the external module.

- **Instrument-level Data Export Rights** – Users with "User rights" level access may specify instrument-level privileges regarding a project 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.

- **Survey Start Time and Smart Variables** – REDCap now collects date stamp of 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.
    - 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.
    - 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].

- **Conditional Logic for Survey Auto Complete** – 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.

- **Dynamic Min/Max Range and @FORCE-MINMAX** – "Date" Field Validation now allows to use "today" and "now" as the min or max in addition to using the exact values as the minimum or maximum range of Text box type fields (e.g., "2021-12-07"), to set dynamic range limits, so that the current date or time is used when it matters. You can also pipe a value from another field(s) as another validation option.
    - **@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. Without the action tag user will be informed that the data being entered is outside of allowable range, but user can proceed and enter it. Action tag ensures the data quality.