REDCap
Research Electronic Data Capture

New Features & Improvements

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Multi-Language Management: Using REDCap's new Multi-Language Management feature, you can create and configure multiple display languages for your projects for surveys, data entry forms, alerts, survey invitations, etc. You can design data collection instruments and have them be displayed in any language that you have defined and translated so that your survey participants or data entry persons can view the text in their preferred language. This eliminates the need to create multiple instruments or projects to handle multiple languages. When entering data on a data entry form or survey, your users and participants will be able to choose their language from a drop-down list on the page to easily switch to their preferred language for the text displayed on the page. This feature allows you to translate all text related to the data entry process, both for surveys and for data entry forms. Even various survey settings and email text can be translated. If you have Project Design/Setup privileges in a project, you will see a link to the Multi-Language Management page on the left-hand menu. All information for this new feature is located there if you wish to learn more.

Form Display Logic: A new feature called Form Display Logic provides a way to use conditional logic to disable specific data entry forms that are displayed on the Record Status Dashboard, Record Home Page, or the form list on the left-hand menu. You might think of it as "form-level branching logic". Form Display Logic can be very useful if you wish to prevent users from entering data on a specific form or event until certain conditions have been met. For more information, click the "Form Display Logic" button in the Online Designer.

Repeating ASIs: You can now set Automated Survey Invitations (ASIs) to send multiple times on a recurring basis for any given survey in your project. If the survey is a repeating instrument or if it exists on a repeating event, you will see a new section "How many times to send it" in the ASI setup popup in the Online Designer. There you may set the ASI to send survey invitations repeatedly at a regular interval, in which it can repeat forever or a set number of times. The new repeating ASI feature works similarly to recurring alerts for Alerts & Notifications.

Improvement: File Repository: The File Repository page has been redesigned to make it easier to store, organize, and share the files in your projects. You now have the ability to create folders and sub-folders to help organize your files more effectively. If you are using Data Access Groups or user roles, you may optionally limit access to a new folder so that it is DAG-restricted and/or role-restricted. Uploading multiple files is much faster with a new drag-n-drop feature that allows for uploading dozens of files at a time. Sharing files is better too, in which you may obtain a public link to conveniently share a file with someone. New API methods also exist that allow you to upload, download, and delete files programmatically using the API. Additionally, the File Repository has a new built-in Recycle Bin folder that makes it easy to restore files that have been deleted.

Improvement: Data Export Privileges: You may now 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 you more granular control regarding what data a user can export from your project.

Download all Files on a Report: When viewing a report (including public reports) that contains one or more File Upload fields or Signature fields, a "Download Files (zip)" button will appear on the page to allow users to easily download all the report's uploaded files into a single zip file for those fields for the records in the report.

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.

Embedding Images in Text & Emails: You may now embed an inline image into the text of a survey invitation, an alert, or a field label on a form/survey by clicking the icon in the rich text editor, and then uploading an image from your local device. Anywhere that the rich text editor is used, you may embed an image into its text (with one exception: the @RICHTEXT action tag on public surveys).

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.

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.

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.

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.

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 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.

Survey Start Time and new 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. You 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. Additionally, you 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]. See the Smart Variable documentation for more info.

New Smart Variables:
- **[new-instance]:** This new Smart Variable can be appended to [survey-link] or [form-link] to create a link to a new, not-yet-created repeating instance for the current record. For example, you can create a recurring alert that contains [survey-url:repeating_survey][new-instance] in the text, in which it will send the recipient a survey link for creating a new instance of a repeating survey.
- **[event-number]** - The current event's ordinal number as listed on the Define My Events page that denotes the order of the event within a given arm.
- **[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 Tags:
- **@IF:** The @IF action tag allows you to set condition-specific action tags for a field that is very similar to using the if() function in branching logic or calculations - e.g., @IF(CONDITION, ACTION TAGS if condition is TRUE, ACTION TAGS if condition is FALSE). Simply provide a condition using normal logic syntax, 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 @HIDECHOICE='3' and @READ-ONLY.
- **@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.
- **@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.
- **@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.
- **@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 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 User Rights Page Options:
New drop-down options 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