

IU REDCap 8.5.x

Release Notes

New Features:

New features: PDF Auto-Archiver & e-Consent Framework

PDF Auto-Archiver

Upon survey completion, a compact PDF copy of the survey response can be automatically stored in the project's File Repository, from which the archived PDFs can be downloaded at any time.

This setting is located on the Survey Settings page in the Online Designer, thus it can be enabled for any given survey in a project.

e-Consent Framework

This feature, which works together with the PDF Auto-Archiver, provides functionality for users to implement electronic consent (e-Consent) using a survey as the consent form, such as for capturing the consent of a research study participant.

The e-Consent Framework option adds two things to the typical survey-taking process. 1) Before a participant completes the survey, an extra certification page is added to end of the survey that displays an in-line PDF copy of their survey responses in which they will be asked to confirm that all information in the document is correct. Once they confirm all is correct, the survey will then be marked as complete. The survey will not be considered complete until they fulfill the certification step. 2) Upon completion of the survey, a static copy of their responses in the form of a consent-specific PDF will be stored in the project's File Repository. The consent-specific PDF will have the values of the e-Consent Framework Options inserted at the bottom of each page in the PDF. These values (i.e., name, date of birth, etc.) are added to the PDF as extra documentation of the identity of the person who is consenting.

A participant's IP Address is also recorded and displayed in the File Repository after the e-Consent process, but this option to collect the IP address can also be optionally disabled at the system level (if desired) on the Modules/Services Configuration page in the Control Center.

The e-Consent Framework feature can be disabled at the system level (if desired) on the Modules/Services Configuration page in the Control Center.

In addition to storing the e-Consent PDFs in a project's File Repository, you may also optionally enable the External Storage option (requires PHP 5.6.0+), which will automatically store the PDFs on a separate file server (using WebDAV or SFTP). This external file server may serve as

a giant “vault” for your entire REDCap installation’s consent forms. This is a system-level setting that can be enabled on the File Upload Settings page in the Control Center.

New feature: Survey-specific email invitation fields

This is a new option on the Survey Settings page that can be enabled for any given survey, in which a user may designate an email field for sending survey invitations for that survey only.

The email field being utilized for the survey can exist on any instrument in the project, and you may use a different email field on each survey. You may also use the same email field for multiple surveys.

This feature is similar to the project-level email invitation field except that it is employed only for the survey where it has been enabled. This allows users to have data entry workflows that require multiple surveys where the participant is different for each survey. Using this feature, multiple people can be emailed a survey invitation, after which all the survey data they enter goes into the same record in the project.

New feature: Smart Variables

Smart Variables are dynamic variables that can be used in calculated fields, conditional/branching logic, and piping. Similar to using project variable names inside square brackets - e.g., [heart_rate], Smart Variables are also represented inside brackets - e.g., [username], [survey-link], [previous-event-name][weight], or [heart_rate][previous-instance]. But instead of pointing to data fields, Smart Variables are context-aware and thus adapt to the current situation. Some can be used with field variables or other Smart Variables, and some are meant to be used as stand-alone. There are many possibilities.

35 Smart Variables are available. They can reference things with regard to users, records, forms, surveys, events/arms, or repeating instances. Documentation and examples for using Smart Variables are included on the Project Setup page, Online Designer, and other places throughout REDCap in a popup and alternatively as a standalone page.

Note: While Smart Variables can be used for filters in reports and for filters for Custom Record Status Dashboards, they are not yet able to be utilized in Data Quality rule logic.

New feature: New syntax for referencing fields on repeating instances in piping, logic, and calculations

Fields that exist on a repeating instrument or on a repeating event can be referenced using a new syntax (note: repeating events and instruments are used the exact same way). This is done by appending the “repeat instance” number to the field inside square brackets – e.g., [weight][2], which points to repeating instance #2 for the field “weight”.

Please note the distinction that unique event names should be *prepended* to variables whereas repeating instance numbers must be *appended* to them. For example, if the field “weight”

exists on a form in the event “Visit Data” in a longitudinal project, you might reference instance #2 for that field on that specific event with the following: [visit_data_arm_1][weight][2].

Smart Variables can be used in place of the repeating instance number, in which there are 5 instance-related Smart Variables: [previous-instance], [next-instance], [current-instance], [first-instance], and [last-instance]. For example, if you wish to use @DEFAULT action tag to carry over data from the previous instance of a repeating instrument, it might be set up as follows: @DEFAULT=”[weight][previous-instance]”.

The Help & FAQ page content was updated

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

Improvements:

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

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

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

Improvement/change: The project Logging page now provides useful contextual information for the ASI logged event "Automatically schedule survey invitation", in which it will display the record name, survey title, and event name (if longitudinal).

Improvement/change: The project Logging page now logs when a survey invitation that was scheduled via ASI gets deleted due to the ASI option "Ensure logic is still true before sending invitation?", in which the logged event will display useful contextual information, such as the record name, survey title, and event name (if longitudinal).

Improvement/change: The project Logging page now logs when a survey invitation is deleted or when its send-time is modified on the Survey Invitation Log, in which the logged event will display useful contextual information, such as the record name, survey title, and event name (if longitudinal).

Performance improvement: For projects containing a large amount of records (i.e., thousands or tens of thousands), some pages in the project might become very slow, and if a user repeatedly attempts to open a page that is initially slow to open, often due to slow database queries being executed, then those queries can get backlogged on the database server and reduce performance over time. A new mechanism has been implemented that will improve server performance in these cases by actively killing off any abandoned MySQL processes that are still running on the server.

Improvement: Added new "Record ID" column in the Survey Invitation Log table to allow users to find specific invitations more efficiently. Note: If the record name should not be displayed in order to preserve the anonymity of a response (e.g., participant identifier is not used, designated email field is not used), it will instead display an icon indicating that the record name cannot be displayed.

Improvement: Added new filter on the Survey Invitation Log table to allow users to filter the invitations by record ID.

Improvement/change: Added new "Record ID" column in the Participant List table. In previous versions, the record ID was appended to the email address in the "Email" column. Having its own column will allow users to find specific participants more efficiently.

Improvement: When opening the "Add/Edit Branching Logic" popup in the Online Designer, it could sometimes be very slow to open if the project contains many fields, especially many multiple choice fields. The popup could even be slow when the selected field does not even have branching logic yet. To improve this, it now defaults to selecting the "Advanced" option first when the popup opens and only attempts to load the "Drag-N-Drop" draggable field choices when that option has been selected by a user. While this won't completely alleviate the issue of the "Drag-N-Drop" option being slow when there are many fields, this will make it much more palatable in a majority of situations when branching logic is being added/edited in the Online Designer.

Improvement: If a field has branching logic, the Online Designer now displays the logic (up to the first 65 characters) on the field so that the user can view it easily without having to open the Add/Edit Branching Logic popup.

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

Improvement: The datepicker widgets and timepicker widgets that are displayed on data entry forms and survey pages now have their language abstracted so that it will display the months, days of the week, and buttons in the language set for the project.

Improvement: SQL fields can utilize Smart Variables (Note: Only REDCap Administrators can create SQL fields)

Utilizing Smart Variables in SQL fields can be very powerful because they allow the query to be truly dynamic and change from context to context or record to record, rather than it always being a static query that gets executed against the database.

Note: When using Smart Variables inside the query of an SQL field, you do NOT need to wrap the Smart Variable in quotes or apostrophes because the Smart Variable itself will be replaced with a value already wrapped in single quotes. Also, the value of the Smart Variable will be SQL-escaped when placed inside the query so that no user can inject values to manipulate the query. This has no effect on how one constructs the query, but for security purposes it is good to know that this is being done.

Improvement: Custom Record Labels now use proper piping syntax and can also utilize Smart Variables.

Because Custom Record Labels existed long before the concept of piping was created in REDCap, they did not adhere to typical piping concepts – e.g., they could not use prepended event names; they would display the raw value of a multiple choice field whereas piping would instead display the label of a multiple choice field. There also used to be certain limitations Custom Record Labels, in which they could only use data from fields on the very first event (of the current arm). Now that Custom Record Labels can be used like regular piping, they can target fields on any event in a project, and they can also utilize Smart Variables.

Note: Any longitudinal projects existing before the upgrade that currently use Custom Record Labels will automatically have all fields in the Custom Record Label prepended with the [first-event-name] Smart Variable in order to maintain the existing behavior from previous versions that could only pull data from the first event of the current arm. So prepending [first-event-name] allows existing longitudinal projects to maintain the way they worked prior to the upgrade to this REDCap version.

Improvement/change: New method for composing survey invitation text using Smart Variables for survey link

When composing a survey invitation, the standard text and survey link are no longer automatically appended to the survey invitation text at the time the email is sent. Instead, users must now specify all the entirety of the text of the email (including the stock text and survey link that used to be appended automatically, if they wish) and therefore must supply [survey-url] and/or [survey-link] in the text if they wish to provide the participant with a link to the survey.

If the user forgets to enter the survey URL Smart Variable in the text, REDCap will automatically suggest to them that they should.

If using the Twilio telephony module for sending invitations, the standard instructional text will still be appended in the SMS message as in previous versions EXCEPT for the “Email invitation” and “SMS invitation (contains survey link)” invitation types, which require [survey-url] and/or [survey-link] in the SMS text in order for the participant to receive a survey link.

Note: All survey invitations that were scheduled prior to this upgrade will still have the standard text and survey link appended to their survey text. Additionally, during the upgrade to this version, all saved configurations for Automated Survey Invitations (ASIs) will have the standard text and survey link automatically appended to the saved ASI email text, thus allowing the ASI behavior to remain exactly the same after the upgrade and allowing it to be backward compatible.

Improvement: Piping can now be used for checkbox fields

Piping from Checkbox fields is slightly different than with other field types because checkboxes allow for multiple saved values. There are options to display a list of checked choices, unchecked choices, or a specific choice.

[my_checkbox:checked] - Appending ':checked' will display a comma-delimited list of choice labels that have been checked - e.g., 'Sunday, Tuesday, Thursday'. Note: If neither ':checked' nor ':unchecked' is appended to the variable, then it will default to ':checked'.

[my_checkbox:unchecked] - Appending ':unchecked' will display a comma-delimited list of choice labels that have NOT been checked - e.g., 'Monday, Wednesday, Friday, Saturday'.

[my_checkbox(code)] - If a coded value of the checkbox is included inside parentheses after the variable name - e.g., [my_checkbox:(2)] - then it will output the word 'Checked' or 'Unchecked' regarding whether or not that specific choice has been checked off.

Please note that while the checkbox piping options listed above will return the text labels, you may also append ':value' to the variable to return the raw value instead of the label. For example, [my_checkbox:checked:value] and [my_checkbox:unchecked:value] might return '1, 3, 5' and '2, 4, 6, 7', respectively, and [my_checkbox(2):value] will return 1 or 0 if checked or not checked, respectively.

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

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

Improvement: The datediff() function can now utilize the “now” variable as one of the two date/time parameters (in a similar way as the “today” variable). This is not only true for calc fields, but also for ASI logic, DQ rules, report filters, etc. You may use a time, date, datetime, or datetime_seconds field with the “now” parameter in datediff. Note: If using a date field with “now”, it will assume midnight (00:00) for the time component for the date field.

Improvement: Fields whose values have numbers with a comma as the decimal mark (e.g., "3,14" - European number format) now work in calculated fields. In previous versions, using a number with a comma would result in a blank returned value for the calc field. Note: The calculated value that is returned from a calculation will still have a dot/period as the decimal mark (if it contains a decimal), so in this way, it will convert into all calc field input values into dot/period format when performing the calculation, thus still returning numbers in dot/period format as all previous versions have.

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

Improvement: The REDCap Mobile App v3.0 and later supports the Repeating Instruments and Events feature in REDCap projects. This version of the mobile app will be released on 6/22/2018 in the Google Play Store, and will also be released in the Apple App Store shortly thereafter (pending approval).

Improvement: A new "hide suspended users" option was added to the Sponsor Dashboard to allow sponsors to hide suspended users when viewing that page.

Changes:

Change: The icons used to represent projects with "archived" status now use the Font Awesome "archive" icon instead.

Change: If the secondary unique field is enabled and contains HTML tags in its field label, those tags will now be stripped out when displaying the label and value of the secondary unique field throughout a project, such as on a report, top of data entry page, and the left-hand project menu when a record is selected. This has been changed because HTML tags in the field label could distort the user interface in unpleasant ways.

Change/improvement: When performing an API export in JSON format for the API methods Export Users, Export Project Info, Export Survey Participants, and Export Events, while the values in the API response were all correct, some API scripts were having trouble with the fact

that some integers were returned in string format (surrounded in quotes) rather than as literal integers in the JSON response. Now they should all be returned as literal integers.

Change: When using the designated email invitation field (enabled on the Project Setup page), if the field is located on an instrument that gets used on multiple longitudinal events or if it is located on a repeating instrument/event, all occurrences of the field will now be forced to have the same value. This means that if one value is entered for the field, that value will always be the value seen in other events or other repeating instances of the instrument. And if the value is changed on any event or repeated instance, then that value will be updated on all events or repeating instruments/events where the field has a value. This will keep the field's value in sync in all locations since the underlying assumption of the designated email invitation field is that there is really only one single value, which is the email address of the survey participant.

Change: When exporting data to SPSS, the resulting SPSS syntax file now defines Text fields as A30000 rather than A500 to allow for Text fields with text longer than 500 characters.

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

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

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

Change: The BioPortal biomedical ontology web service is now called through a secure method (SSL/HTTPS) by REDCap. This will not affect how the ontology field search works, but provides more security by encrypting all the requests being sent from REDCap to the data.bioontology.org website.

Change: When piping field values into an @DEFAULT action tag when the piped value is blank/non-existent, it now no longer replaces the [variable] with "_____" but instead replaces it with "" (i.e., nothing), which is viewed as more preferable since the value is being input as a field value. This is only true for piping specifically within the @DEFAULT tag and not for piping in general.

Change: The field validation for North American phone numbers is now more permissible and allows a greater variety of numbers to be used, such as 8XX and 900 numbers.

Change: When clicking the "No Access" option for an instrument in Data Entry Rights when adding/editing a user's privileges on the User Rights page, it now automatically deselects the "Edit survey responses" checkbox if the instrument has been enabled as a survey.

Changed: When viewing the Smart Variables documentation from a project-level context, it will now use the project-level language for the documentation, whereas if viewed outside a project-

level context, it will use the system language. It was previously only displaying the documentation in the system language.

Change/improvement: The main Control Center page now displays a warning message if any non-versioned files are outdated and need to be replaced. In previous versions, this warning would only appear on the Configuration Check page.

Change/improvement: Slight performance improvement on "Add/Edit Records" page for longitudinal projects using the Custom Record Label.

Change/improvement: On the "Stats & Charts" page, the variable name is now displayed next to the field label for each field displayed on the page.

Change: When composing a survey invitation and clicking the "Preview" tab, instead of displaying the survey link as "Sample Survey Link" or "SURVEY TITLE", it now displays the actual survey title as the link text. Additionally, when clicking the "Send text email", this same thing now occurs in the email that is received.

Change: Added "Postal Code (Germany)" as a new field validation type.

Change: Added "Postal Code (France)" as a new field validation type.

Change: Extra protection has been added to the username/password form when using the E-signature feature on a data entry form in order to prevent browsers from auto-filling the username/password.