



New Features, Changes & Improvements

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AT THE FOREFRONT
UChicago
Medicine



THE UNIVERSITY OF
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CENTER FOR
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NEW FEATURES:

New feature: Field Embedding

- Field Embedding is the ultimate way to customize surveys and data collection instruments to make them look exactly how you want. Field Embedding is a Shazam-like feature that allows you to reposition field elements on a survey page or data entry form so that they get embedded in a new location on that same page. Embedding fields gives users greater control over the look and feel of your instrument. Users may place fields in a grid/table for a more compact user-friendly page, or they can position fields close together in a group if they are related.
- To use Field Embedding, users simply need to place the REDCap variable name of a field inside braces/curly brackets - e.g., {date_of_birth} - and place it in the Field Label, Field Note, Section Header, or Choice Label of any other field on that same instrument. Field embedding will not work across instruments but only on the current instrument/survey being viewed. If on a multi-page survey, then the embedded field must be on the same survey page as its host field.
- No action tags or custom HTML is required to use Field Embedding. Users can simply use the rich text editor in the Online Designer to design their layout and then place the field variables inside that layout. The layout does not have to be a table/grid (although tables are common for this), and fields can be embedded inside *any* field type (not just Descriptive fields).
- Note: When installing or upgrading to v10.0.0, a new project “Field Embedding Example Project” will be automatically added as a project template to allow users and admins to easily see some examples of Field Embedding in action.

Example of setting up an embedded field in the Online Designer using a table in a Descriptive field's Field Label:

Edit Field

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button on this page. For an overview of the different field types available, you may view the [Field Types video \(4 min\)](#).

Field Type:

Field Label Use the Rich Text Editor [?](#)

Paragraph **B** *I*

	2012	2013	2014	2015	2016
Federal Grants	{fed2012}	{fed2013}	{fed2014}	{fed2015}	{fed2016}
Non-federal Grants	{nfed2012}	{nfed2013}	{nfed2014}	{nfed2015}	{nfed2016}
Research Agreements/Contracts	{contr2012}	{contr2013}	{contr2014}	{contr2015}	{contr2016}

EXAMPLE 1

Record ID	3				
Sponsored Research Proposals					
	2012	2013	2014	2015	2016
Federal Grants	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Non-federal Grants	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Research Agreements/Contracts	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
Food question					
How often did you eat spicy foods last year?	<input type="text"/>			<input type="radio"/> Per day <input type="radio"/> Per week <input type="radio"/> Per month <input type="radio"/> Do not know / Prefer not to answer	
	number of servings			reset	

EXAMPLE 2

Patient name:		First <input type="text"/>	Last <input type="text"/>
Date of birth:	<input type="text"/>	<small>31</small> M-D-Y	Sex: <input type="radio"/> Male <input type="radio"/> Female <input type="radio"/> Unknown <input type="radio"/> Other reset
Age (in either years/months/days):	<input type="text"/>	Age units:	<input type="radio"/> Years <input type="radio"/> Months <input type="radio"/> Days reset
.....PATIENT IDENTIFIER INFORMATION ABOVE IS NOT TRANSMITTED TO CDC.....			
Reporting jurisdiction:	<input type="text"/>	Case State/local ID:	<input type="text"/>
Reporting health department:	<input type="text"/>	CDC 2019-nCoV ID:	<input type="text"/>
Contact ID ^a:	<input type="text"/>	NNDSS loc.rec.ID/Case ID ^b:	<input type="text"/>
Was the patient hospitalized?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown reset	Admission Date	<input type="text"/> <small>31</small> M-D-Y
		Discharge Date	<input type="text"/> <small>31</small> M-D-Y
Interviewer information			
Name of interviewer: Last Name	<input type="text"/>	First Name	<input type="text"/>
Affiliation/Organization:	<input type="text"/>	Telephone:	<input type="text"/>
Email:	<input type="text"/>		

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”
 1. 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.
 2. Users can opt to create a custom/short url (via the <https://redcap.link> service) for any project dashboard that is enabled as “public”.
 3. 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
 1. 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).
 2. 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.
 3. 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.
 4. 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.

PROJECT DASHBOARD EXAMPLE

REDCap logo and navigation sidebar including sections like My Projects, Project Home and Design, Data Collection, Applications, Project Dashboards, Reports, and Help & Information.

Test Project PID 12199

Project Dashboard Example 1

Displaying information generated 6 minutes ago [Refresh](#)
[Edit](#) [Export as PDF](#)

SMART FUNCTIONS are aggregate mathematical functions that are applied across ALL records in a project. Smart Functions include **min, max, mean, median, sum, stdev, count,** and **unique.**

This project contains **50 records**. The average age of all participants is **47.38** (stdev=30.93). The median weight is **109** (min: 47, max: 197).

SMART TABLES display descriptive statistics for fields with each field as a row in the table.

Smart Tables can be displayed with ALL columns by default:

	Count	Missing	Unique	Min	Max	Mean	Median	StDev	Sum
Height (cm)	50	0	35	133	214	177.22	180	24.64	8,861
Weight (kilograms)	50	0	44	47	197	114.72	109	42.79	5,736
Race	50	0	7						
Gender	50	0	2						

[Export table \(CSV\)](#)

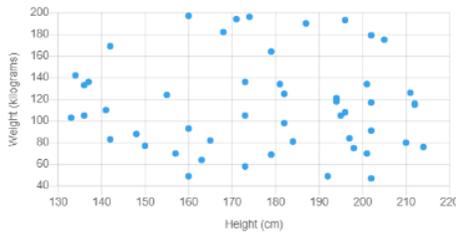
Or with only specified columns:

	Mean	StDev
Age (years)	47.38	30.93
Weight (kilograms)	114.72	42.79
Height (cm)	177.22	24.64

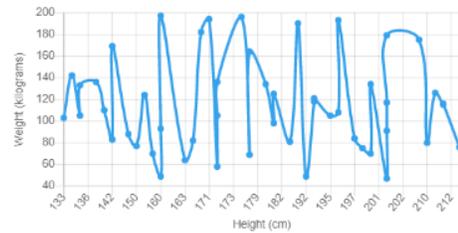
[Export table \(CSV\)](#)

SMART CHARTS can be used to display many types of charts for one or more fields in the project.

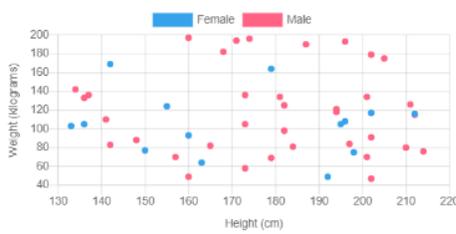
Display a **scatter plot** of two fields (x vs y):



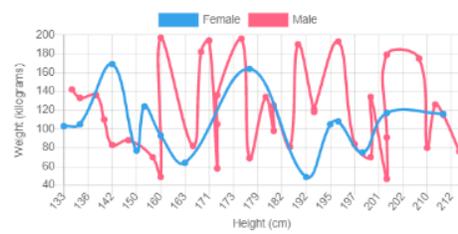
Use **line charts** with two fields (x vs y):



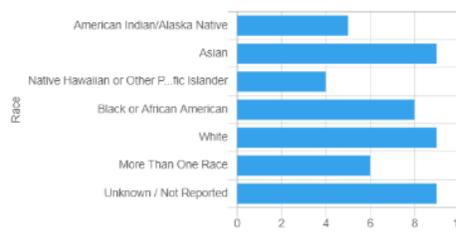
Add a third field for grouping (by color):



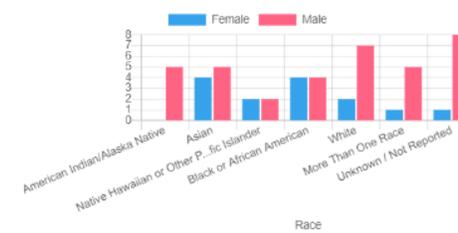
Add a third field for grouping (by color):



Display a **bar chart** with a single multiple choice field:



Display bar charts vertically, and add a second field for grouping:



Display a **pie chart**



Or a **donut chart**



New feature: DAG Switcher

- Users assigned to Data Access Groups (DAGs) can optionally be assigned to multiple *potential* DAGs, in which they may be given the privilege of switching in and out of specific DAGs on their own whenever they wish.
- When assigned to multiple DAGs, the user will see a blue banner at the top of every project page, which will present them with the option to switch to another DAG. NOTE: Users may not move themselves into another DAG unless someone with rights to this page has explicitly granted them privileges to be in multiple DAGs.
- To assign a user to multiple DAGs, navigate to the Data Access Groups page in a project where you will see the DAG Switcher near the bottom of the page. Then follow the directions provided there. The DAG Switcher feature is completely optional and can be used in any project that has Data Access Groups.
- NOTE: The DAG Switcher feature does not override a user's current DAG assignment, as set on the Data Access Groups page or on the User Rights page.
- This feature is the result of integrating the “DAG Switcher” external module that was built by Luke Stevens. We thank him for his contribution and for agreeing to let us integrate this useful module into REDCap. NOTE: Because the “DAG Switcher” external module is not compatible with this integrated functionality in v9.9.0, when upgrading REDCap to 9.9.0 or higher, if the “DAG Switcher” external module is already installed and enabled on your REDCap system, it will be automatically disabled at the system level during the upgrade process to prevent a conflict.

⚡ DAG Switcher: Enable multiple Data Access Groups for users Display options: Rows are DAGs
 Rows are Users

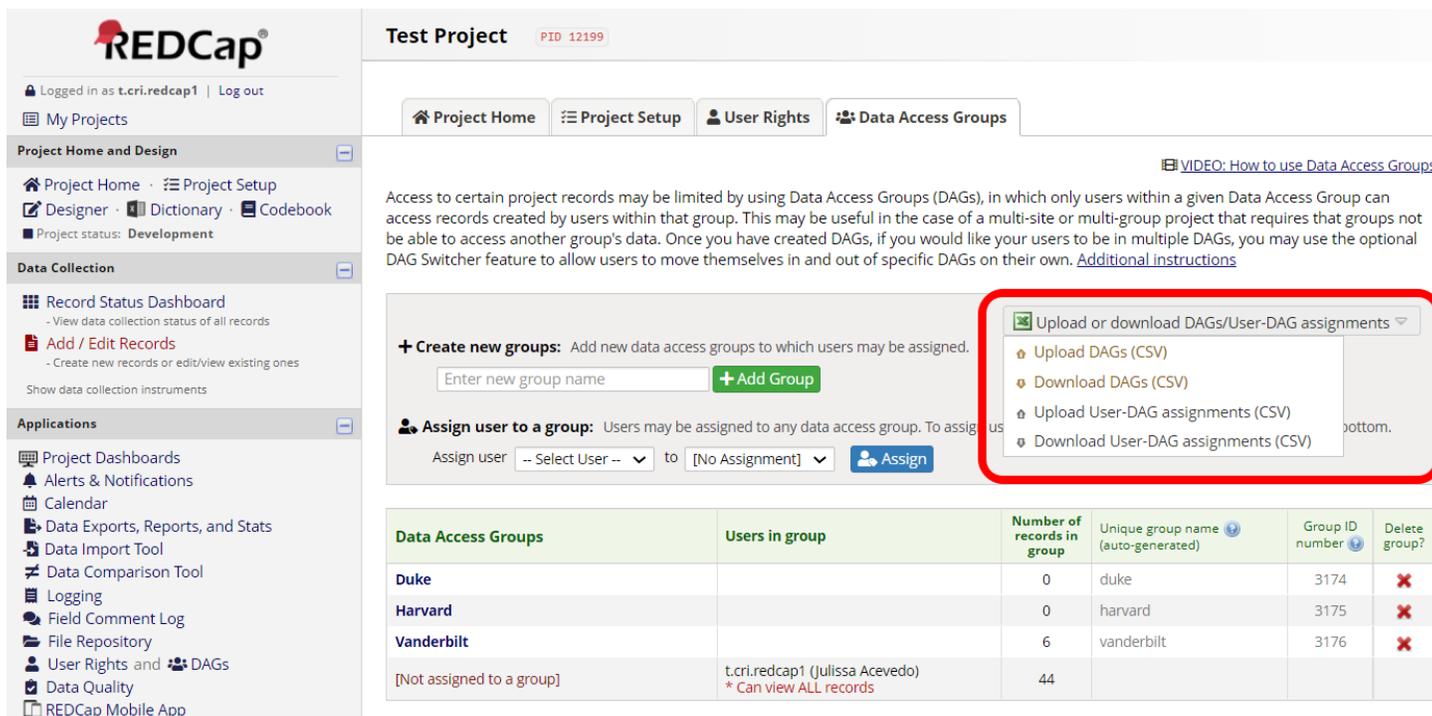
Users assigned to Data Access Groups (DAGs) can optionally be assigned to multiple *potential* DAGs, in which they may be given the privilege of switching in and out of specific DAGs on their own whenever they wish. To assign a user to multiple DAGs, check the checkboxes below for that user. At least two DAGs must be checked for a user in order for them to use the DAG Switcher. NOTE: This does not override a user's current DAG assignment, as set above or on the User Rights page.

Show entries

Data Access Groups	Users
[No Assignment]	<input type="checkbox"/>
Duke	<input type="checkbox"/>
Harvard	<input type="checkbox"/>
Vanderbilt	<input type="checkbox"/>

New feature: Data Access Group import/export and DAG-User assignment import/export

The Data Access Groups page in a project now displays a drop-down list of options for users to import/export Data Access Groups, which allows users to bulk create or rename DAGs via a CSV file. It also allows for the import/export of DAG-user assignments via CSV file to bulk assign/reassign/unassign users from DAGs in a project. Note: The DAG-user assignment import affects only a user's *current* DAG assignment; thus, it has no effect on the DAG Switcher assignments for the user.



Access to certain project records may be limited by using Data Access Groups (DAGs), in which only users within a given Data Access Group can access records created by users within that group. This may be useful in the case of a multi-site or multi-group project that requires that groups not be able to access another group's data. Once you have created DAGs, if you would like your users to be in multiple DAGs, you may use the optional DAG Switcher feature to allow users to move themselves in and out of specific DAGs on their own. [Additional instructions](#)

+ Create new groups: Add new data access groups to which users may be assigned.

Enter new group name

Assign user to a group: Users may be assigned to any data access group. To assign user to

Data Access Groups	Users in group	Number of records in group	Unique group name (auto-generated)	Group ID number	Delete group?
Duke		0	duke	3174	✗
Harvard		0	harvard	3175	✗
Vanderbilt		6	vanderbilt	3176	✗
[Not assigned to a group]	t.cri.redcap1 (Julissa Acevedo) * Can view ALL records	44			

New feature: Record-level locking feature

- This feature allows users to lock an entire record (as opposed to locking individual instruments) so that none of the record's data can ever be modified unless someone with record-level locking/unlocking privileges goes and unlocks the record again.
- The old "lock all forms for all events" feature has been changed into this new record-level locking feature, which is distinguishable from the existing instrument-level locking feature. Now the instrument-level locking can only be used while on a data entry form (using the Locking checkbox at the bottom of the form). Whereas the record-level locking feature is available as an option on the Record Home Page and on the project's left-hand menu after a record has been selected.
- While records have always been able to be locked (i.e., made read-only) for individual data collection instruments in a project, you may now easily lock an ENTIRE record so that no data in the record can ever be modified while it is locked.
- WHAT HAS CHANGED? It is important to note that the old user privilege "Lock all forms" has now been converted into the new record-level locking feature, which works completely independently from instrument-level locking (i.e., the checkbox at the bottom of data entry forms). Instead of that particular user privilege allowing you to lock all forms individually (which was the previous behavior), it

will now serve in a slightly different capacity as the record-level locking user privilege to lock an entire record fully.

- HOW TO USE IT: You may lock an entire record via the "choose action for record" drop-down on the Record Home Page or by clicking the "Lock Entire Record" link on the project's left-hand menu when viewing a record. Note: Since the record locking and instrument locking are completely separate features, they both may be used together in a project, if you wish. However, please note that since record locking is a higher-level locking than instrument locking, an entire record may be locked or unlocked while one or more instruments are currently locked, but an instrument cannot be locked or unlocked while the entire record is locked.

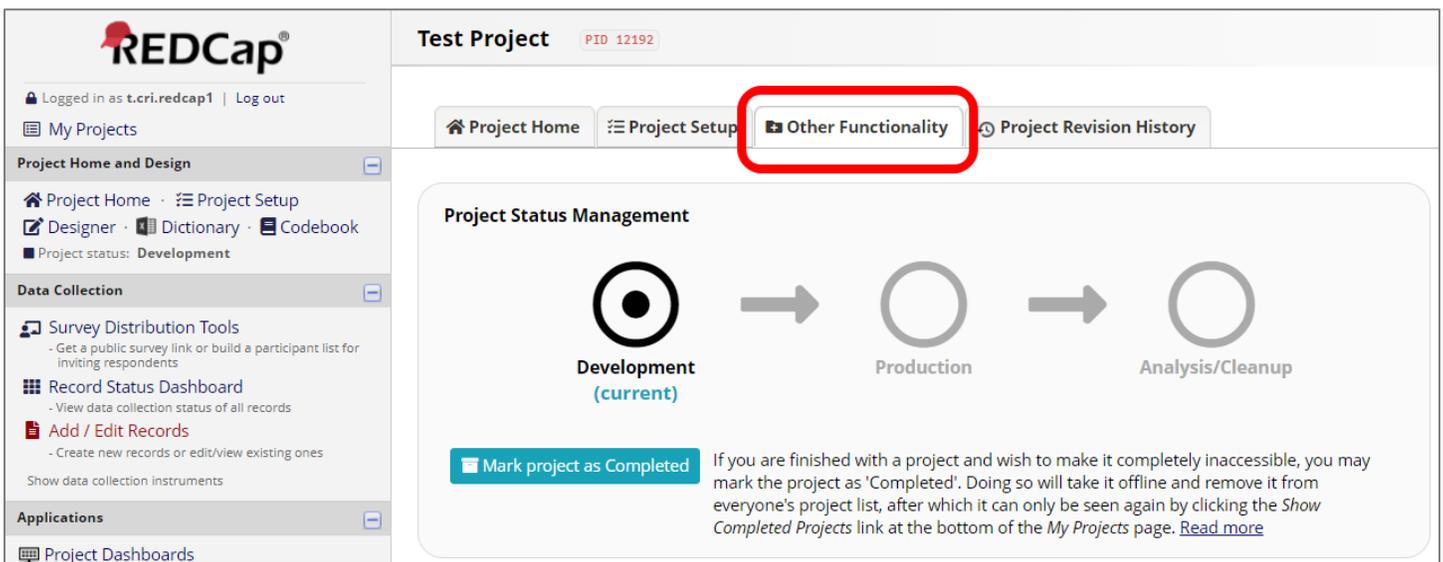
The screenshot shows the REDCap interface for a project named "Validation: Test Template Project" (PID 12193). The user is logged in as t.cri.redcap1. The left-hand menu includes sections for Project Home and Design, Data Collection, and Applications. The main content area displays the "Record Home Page" with a grid of data entry progress for various forms. A dropdown menu titled "Choose action for record" is open, showing options such as "Download ZIP file of all uploaded documents", "Download PDF of record data for all instruments/events", "Download PDF of record data for all instruments/events (compact)", "Lock entire record" (highlighted with a red box), "Assign to Data Access Group", and "Delete record (all forms/events)". A legend for status icons is also present, defining colors for Incomplete, Unverified, Complete, and Mixed statuses.

Form/Event	Status 1	Status 2
Month 1 Data	○	●
Month 2 Data	○	○
Month 3 Data	○	○
Completion Data		○
Delete all data on event:	×	×

Project life cycle changes

- New feature: Mark a project as "Completed": If users are finished with a project and wish to make it completely inaccessible, they may mark the project as Completed. Doing so will take it offline and remove it from everyone's project list, after which it can only be seen again by clicking the Show Completed Projects link at the bottom of the My Projects page. Once marked as Completed, no one in the project (except for REDCap administrators) can access the project, and only administrators may undo the Completion and return it back to an accessible state for all project users. Marking a project as Completed is typically only done when users are sure that no one needs to access the project anymore, and they want to ensure that the project and its data remain intact for a certain amount of time.
- Change: The "Inactive" project status has been renamed to "Analysis/Cleanup" status to help reinforce that cleaning and analyzing the data is the next logical step after data collection in Production status.

- New feature: Projects that are in "Analysis/Cleanup" status can now optionally have their project data set as "Locked/Read-only" or "Editable" (see the top of the Project Setup or Project Home page). This will give users more control to prevent data collection from happening while in this project status.
- Change: New records can no longer be created while in "Analysis/Cleanup" status. If users wish to create records, the project must be moved back to Production status.
- Change: The "Archived" project status has been removed and converted into a built-in Project Folder named "My Hidden Projects", as now seen at the bottom of each user's My Projects page. If users wish to hide any projects from their My Projects list, they may click the Organize button on that page and place the projects into that new Project Folder. NOTE: Any already-archived projects will be automatically placed there and will have their project status set as "Analysis/Cleanup" to match the projects' general behavior prior to the upgrade.



New special functions: left(), right(), mid(), length(), find(), trim(), upper(), lower(), and concat().

These nine new functions can be specifically used when dealing with text values and may be especially useful when using them in conjunction with the @CALCTEXT action tag. To learn more and to see some practical examples of their usage, click the blue 'Special Functions' button in the Online Designer in any project.

- left (text, number of characters) - Returns the leftmost characters from a text value. For example, left([last_name], 3) would return 'Tay' if the value of [last_name] is 'Taylor'.
- right (text, number of characters) - Returns the rightmost characters from a text value. For example, right([last_name], 4) would return 'ylor' if the value of [last_name] is 'Taylor'.
- length (text) - Returns the number of characters in a text string. For example, length([last_name]) would return '6' if the value of [last_name] is 'Taylor'.
- find (needle, haystack) - Finds one text value within another. Is case insensitive. The "needle" may be one or more characters long. For example, find('y', [last_name]) would return '3' if the value of [last_name] is 'Taylor'. The value '0' will be returned if "needle" is not found within "haystack".
- mid (text, start position, number of characters) - Returns a specific number of characters from a text string starting at the position you specify. The second parameter denotes the starting position, in which the beginning of the text value would be '1'. The third parameter represents how many

characters to return. For example, `mid([last_name], 2, 3)` would return 'AYL' if the value of `[last_name]` is 'TAYLOR'.

- `concat (text,text,...)` - Combines/concatenates the text from multiple text strings into a single text value. For example, `concat([first_name], ' ', [last_name])` would return something like 'Rob Taylor'. Each item inside the function must be separated by commas. Each item might be static text (wrapped in single quotes or double quotes), a field variable, or a Smart Variable.
- `upper (text)` - Converts text to uppercase. For example, `upper('John Doe')` will return 'JOHN DOE'.
- `lower (text)` - Converts text to lowercase. For example, `lower('John Doe')` will return 'john doe'.
- `trim (text)` - Removes any spaces from both the beginning and end of a text value. For example, `trim(' Sentence with spaces on end. ')` will return 'Sentence with spaces on end.'

New feature: Survey-level Stop Action controls (new section on Survey Settings page)

- Alternative survey completion text - Users can optionally set alternative survey completion text that is displayed in place of their standard survey completion text whenever a survey is ended via a Stop Action on any field. This is useful when it doesn't make sense for non-eligible participants to see the same survey completion text as those who completed the survey fully.
- Prevent survey responses from being saved if the survey ends via Stop Action - Users can optionally choose to prevent submitted responses from being saved as data in the project if the survey ends via Stop Action. This is useful if survey administrators do not wish to keep the data for ineligible participants, for example. This means that if a one-page public survey is started but ends via Stop Action, no data from that response will be saved into the project (i.e., no new record will be created), but it will log this event on the project Logging page (so that users are at least aware of this happening despite no data being saved).
 1. NOTE: If any data has been saved on the survey instrument for a given record prior to the Stop Action being triggered, that data will be deleted from that instrument. For example, if the survey is a multi-page survey in which data has been entered on previous pages prior to triggering the Stop Action, all data collected thus far in that survey will be deleted as if the survey was never taken. Additionally, if the record does not contain data in any other instruments, the entire record itself will be deleted during this process. If data does exist in other instruments, the record will not be deleted.
 2. PRIVACY NOTE: If the option for Data Privacy/GDPR has been enabled in the project, in which it removes the contents of the log for a record that is deleted from the project, then if an entire record is deleted via this particular survey setting via a Stop Action, then all logged data values for the record will be removed from the log as per this project's data privacy setting.

Options related to Survey Stop Actions:

Prevent survey responses from being saved if the survey ends via Stop Action?

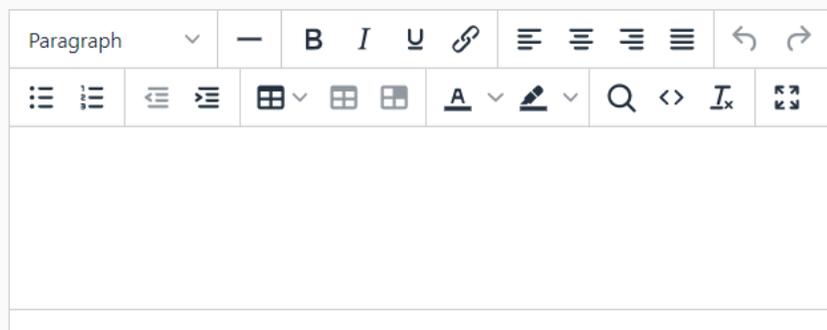
If a Stop Action triggers the end of the survey, you may choose to keep the submitted responses or to prevent them from being saved as data in the project.

Save all survey responses regardless of Stop Action being triggered (default) ▼

WARNING: If any data has been saved on the survey instrument prior to the Stop Action being triggered, that data will be deleted. For example, if the survey is a multi-page survey in which data has been entered on previous pages prior to triggering the Stop Action, all data collected thus far in that survey will be deleted as if the survey was never taken. Additionally, if the record does not contain data in any other instruments, the entire record itself will be deleted during this process.

Alternate Survey Completion Text (optional)

This completion text is ONLY displayed when a Stop Action triggers the end of the survey. If left blank, the standard Survey Completion Text will be used.

A screenshot of a rich text editor interface. The top row of the toolbar includes a dropdown menu set to 'Paragraph', followed by icons for bold (B), italic (I), underline (U), link, bulleted list, numbered list, indent left, indent right, table, table border, text color, background color, search, source code, and undo/redo. Below the toolbar is a large, empty text area with a small cursor icon at the bottom right.

[How to use Piping here](#)

New feature: @INLINE action tag

Allows a PDF file or image file (JPG, JPEG, GIF, PNG, TIF, BMP) that is uploaded to a File Upload field to be displayed in an inline manner on the survey page or data entry form so that the PDF/image can be viewed by the user or survey participant without having to download it.

- The PDF/image will be displayed inline on the page immediately above the download link for the field and will be displayed with 100% width by default (i.e., 100% width of the area in which it is contained).
- Images will be displayed with their native width:height ratio, although PDFs will be displayed with a 300 pixel height by default. If you wish to manually set the width and/or height of the image/PDF, you may put the width/height values inside parentheses after the action tag in the following manner: @INLINE(width) or @INLINE(width,height). The width/height can be a percentage value (e.g., 50%) or a number representing size in pixels (e.g., 400). Thus @INLINE(50%) will display an image at 50% size for the area in which it is contained on the page, and @INLINE(400,100) would display the image always at 400px tall and 100px wide. To make an inline PDF appear taller on the page, you might use @INLINE(100%,600) since 300px is the default height for inline PDFs.
- The @INLINE action tag also works if the File Upload field is embedded inside another field on the page.

New feature: New “:inline” piping option for File Upload fields

- If piping using the ':inline' option for a File Upload field, such as [my_field:inline], in which the uploaded file is a PDF file or image file (JPG, JPEG, GIF, PNG, TIF, BMP), the file will be displayed in an inline manner so that it is viewable on the page.
- The ':inline' option DOES work inside emails, so you can pipe a field with ':inline' inside the email body, thus allowing you to display inline images inside survey invitations or Alerts & Notifications.
- The @INLINE action tag does not need to be used on a field in order to utilize the “:inline” piping option.

- Note: Inline images are not able to be displayed inside a downloaded PDF of a survey/instrument that contains data.

New action tag: @PREFILL

Sets a field's value to static text or dynamic/piped text whenever a data entry form or survey page is loaded, in which it will always overwrite an existing value of the field. The format must follow the pattern `@PREFILL="????"`, in which the desired value should be inside single or double quotes. A field with `@PREFILL` will always be read-only, thus its value cannot be modified manually on the data entry form or survey page. For text fields, you may pipe and concatenate values from other fields in the project - e.g., `@PREFILL='Name: [first_name] [last_name], DOB: [dob]'`. For checkbox fields, simply separate multiple checkbox values with commas - e.g., `@PREFILL='1,3,[other_field:value]'`. NOTE: The piped value does *not* get applied during any data imports (via API or Data Import Tool) but only operates when viewing survey pages and data entry forms. NOTE: A field with `@PREFILL` will have its value updated *ONLY* when the page loads, which means that its value will not be updated in real-time if you modify other fields on the same page that are piped into the `@PREFILL` tag. NOTE: If being used on a date or datetime field, the date value inside the quotes must be in Y-M-D format - e.g., `@PREFILL='2007-12-25'` - regardless of the field's set date format. NOTE: The only difference between `@PREFILL` and `@DEFAULT` is that `@DEFAULT` is only applied when an instrument has no data yet, whereas `@PREFILL` will always be applied on an instrument, meaning that `@PREFILL` will *ALWAYS* overwrite the value if a field value already exists. TIP: To pipe the value of one multiple choice field into another multiple choice field, make sure you append ':value' to the variable being piped - e.g., `PREFILL='[my_dropdown:value]'`.

New action tag: @CALCDATE

Performs a date calculation by adding or subtracting a specified amount of time from a specified date or datetime field and then provides the result as a date or datetime value - e.g., `@CALCDATE([visit_date], 7, 'd')`. The first parameter inside the `@CALCDATE()` function should be a text field with date, datetime, or datetime_seconds validation, in which you may specify (if needed) the event and repeating instance - e.g., `@CALCDATE([baseline_event][visit_date], 7, 'd')`. The second parameter represents the offset number amount that should be added or subtracted. It can be a decimal number or integer. Tip: To subtract (i.e., go backwards in time), use a negative number. The third parameter represents the units of the offset amount, which will be represented by the following options: 'y' (years, 1 year = 365.2425 days), 'M' (months, 1 month = 30.44 days), 'd' (days), 'h' (hours), 'm' (minutes), 's' (seconds). The unit option must be wrapped in quotes or apostrophes. NOTE: Both the source field and the result field must be a text field with date, datetime, or datetime_seconds validation. It is important to realize that a field with `@CALCDATE` will not be editable on the survey page or data entry form, and the field will function almost exactly like a normal calculated field, in which its value may get updated via a data import, when running Data Quality rule H, or in real-time during normal data entry on a form or survey.

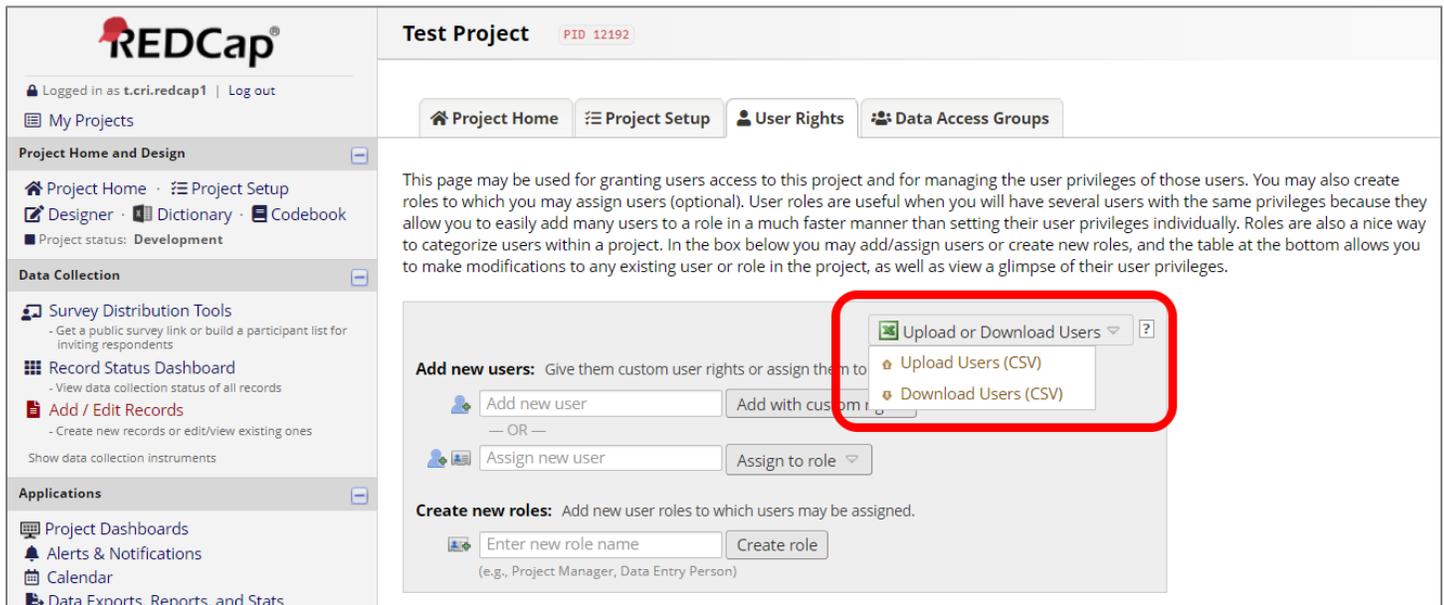
New action tag: @CALCTEXT

Evaluates logic that is provided inside a `@CALCTEXT()` function and outputs the result as text, typically performed with an `if(x,y,z)` function - e.g., `@CALCTEXT(if([gender]='1', 'male', 'female'))`. NOTE: It is important to realize that a field with `@CALCTEXT` will not be editable on the survey page or data entry form, and the field will function almost exactly like a normal calculated field, in which its value may get updated via a data import,

when running Data Quality rule H, or in real-time during normal data entry on a form or survey. If desired, it is possible to return the value as a number - e.g., @CALCTEXT(if([age] >= 18, 'adult', 5*[other_field])).

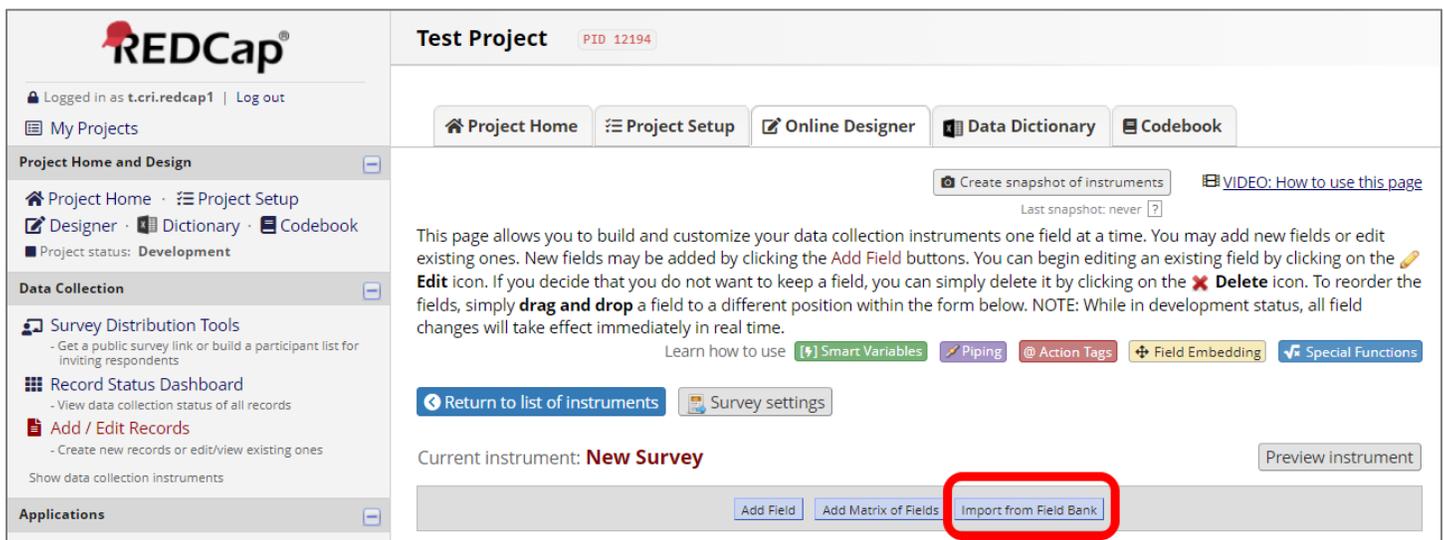
New feature: Ability to import/export user rights via a CSV file on the User Rights page

Users can download a CSV file to view all the user privileges of the existing users in a project, including their instrument-level user rights. Users can upload a CSV file to grant new users access to the project and/or to modify the user privileges of existing users, including their instrument-level user rights.



New feature: Field Bank

When adding new fields via the Online Designer, users will see an "Import from Field Bank" button, which will allow them to search different standardized catalogs of commonly used fields, such as in the U.S. National Library of Medicine catalog. The Field Bank helps users add new fields quickly and easily to their data collection instruments. Over time, more standardized catalogs of fields will be added to the Field Bank.



Import from Field Bank

Using the Field Bank, search for fields in various catalogs below by selecting a catalog and entering specific keyword. When reviewing the results of your search, click the "Add Field" button for the field to add that field to the current data collection instrument.

Select a catalog to search: NIH/NLM Catalog U.S. National Library of Medicine

Search:

60 fields found for NIH/NLM Catalog → All Classifications - Keyword: race 1 - 20 of 60

Race OMB.1997 [+ Add Field](#)

Choose alternative field label:

Native Hawaiian or Other Pacific Islander
 American Indian or Alaska Native
 Asian
 Black or African American
 White

Classification: NLM
Description: The race of a person based on the Office of Management and Budget (OMB), Revisions to the Standards for the Classification of Federal Data on Race and Ethnicity (Oct. 30, 1997).

Race [+ Add Field](#)

American Indian or Alaska Native
 Asian
 Black or African American
 Native Hawaiian or Other Pacific Islander
 White
 Unknown

Classification: NLM

New feature: Select and modify multiple fields together on the Online Designer

Users may select multiple fields on the Online Designer by holding the Ctrl, Shift, or Cmd key on their keyboard while clicking on the field in the table, which will reveal the options to Move, Copy, or Delete all the selected fields. To make users aware of this feature, a floating note now appears near the right side of the page in the Online Designer with instructions on how to use this.

REDCap

Logged in as t.cri.redcap1 | Log out

My Projects

Project Home and Design

- Project Home
- Project Setup
- Designer
- Dictionary
- Codebook
- Project status: Development

Data Collection

- Survey Distribution Tools
- Record Status Dashboard
- Add / Edit Records

Applications

- Project Dashboards
- Alerts & Notifications
- Calendar
- Data Exports, Reports, and Stats
- Data Import Tool
- Data Comparison Tool
- Logging
- Field Comment Log
- File Repository
- User Rights and DAGs

Test Project PID 12192

Project Home | Project Setup | **Online Designer** | Data Dictionary | Codebook

Create snapshot of instruments | VIDEO: How to use this page

This page allows you to build and customize your data collection instruments one field at a time. You may add new fields or edit existing ones. New fields may be added by clicking the **Add Field** buttons. You can begin editing an existing field by clicking on the **Edit** icon. If you decide that you do not want to keep a field, you can simply delete it by clicking on the **Delete** icon. To reorder the fields, simply **drag and drop** a field to a different position within the form below. NOTE: While in development status, all field changes will take effect immediately in real time.

Learn how to use: [Smart Variables](#) | [Piping](#) | [Action Tags](#) | [Field Embedding](#) | [Special Functions](#)

[Return to list of instruments](#)

Current instrument: **Data Form** [Preview instrument](#)

Variable: record_id

Record ID

NOTE: The field above is the record ID field and thus cannot be deleted or moved. It can only be edited.

[Add Field](#) [Add Matrix of Fields](#) [Import from Field Bank](#)

Variable: mrn

MRN

[Add Field](#) [Add Matrix of Fields](#) [Import from Field Bank](#)

How to embed a field elsewhere

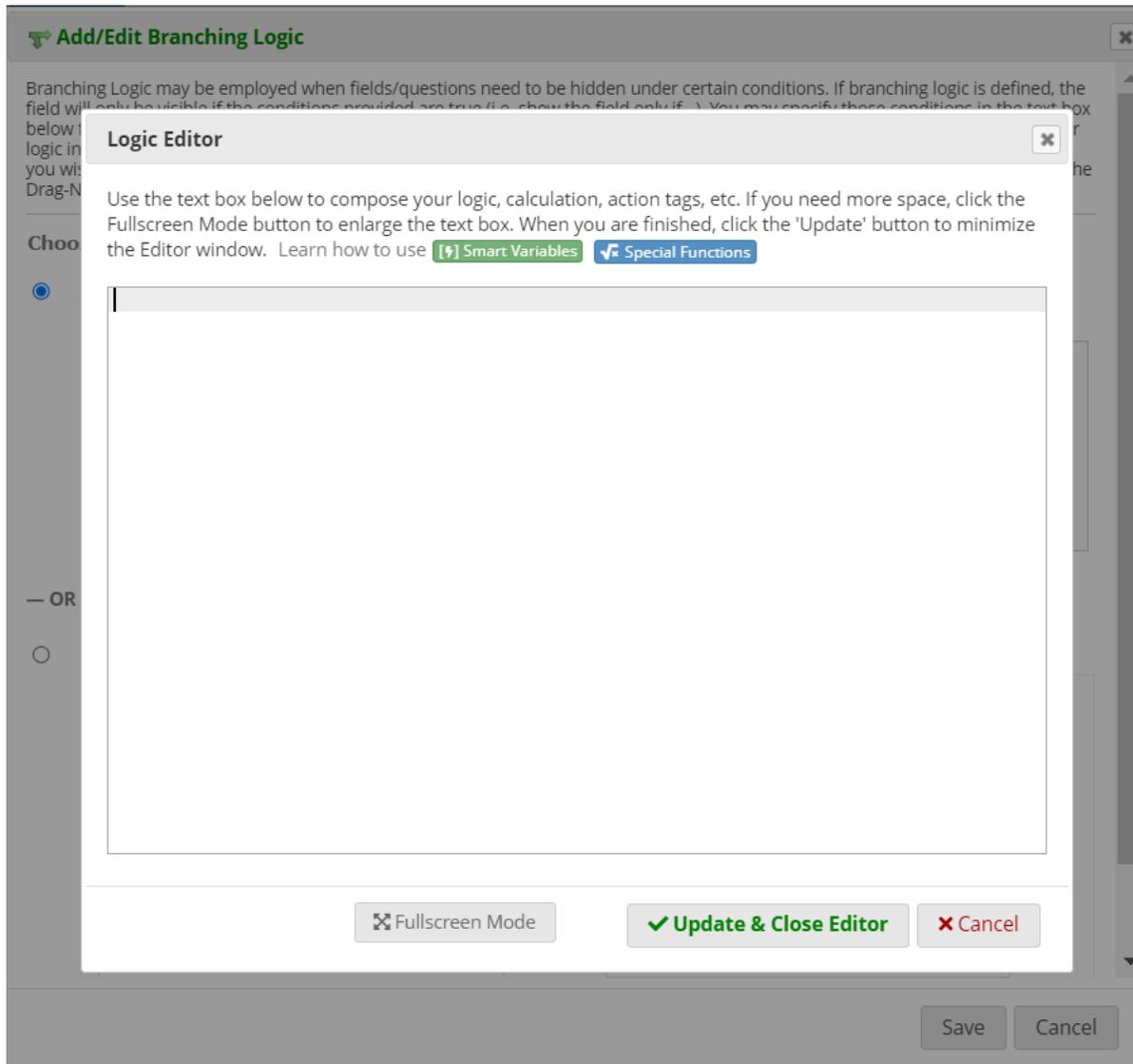
Learn how to customize your instrument or survey by using [Field Embedding](#).

How to modify multiple fields together

To copy, move, or delete multiple fields at the same time, hold the Ctrl, Shift, or Cmd key on your keyboard and click the field to reveal the options.

New feature: New logic editor for conditional logic, branching logic, calculations, report filters, etc.

In every place where users might add/edit logic or calculations, the new logic editor will be displayed in a modal dialog to provide a better user experience for entering their logic. The logic editor provides much more space for entering large amounts of logic, including a fullscreen mode to take maximum advantage of their screen's real estate. It also provides bracket-matching and parentheses-matching where it will highlight a pair of matching brackets/parentheses to make it easier for users to gauge which brackets/parentheses belong together in the logic, thus reducing possible errors in the logic when typing.



New feature: REDCap-branded URL Shortener (<https://redcap.link>)

The "Get short survey link" and "Create custom survey link" buttons on a project's Public Survey Link page now utilize the REDCap-branded URL Shortener (<https://redcap.link>) instead of BIT.LY and IS.GD, which are third-party websites utilized by previous versions.

Test Project PID 12194

Survey Distribution Tools

Public Survey Link Participant List Survey Invitation Log

Using a public survey link is the simplest and fastest way to collect responses for your survey. You may obtain the survey link below to email it to your participants. Responses will be collected anonymously (unless the survey contains questions asking for identifying data from the participant). **NOTE:** Since this method uses a single survey link for all participants, it allows for the possibility of participants taking the survey multiple times, which may be necessary in some cases.

To obtain the survey link, copy the URL below and paste it into the body of an email message in your own email client. Your email recipient(s) can then click the link to begin taking your survey.

Public Survey URL:

OR Short Public Survey URL:

Link Actions

- Open public survey
- Open public survey + Log out
- Send me URL via email
- Survey Access Code or QR Code

Link Customizations

- Get Short Survey Link
- Create Custom Survey Link
- Get Embed Code

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.

Test Project PID 12194

Alerts & Notifications

The Alerts & Notifications feature allows you to construct alerts and send customized notifications. These notifications may be sent to one or more recipients and can be triggered or scheduled when a form/survey is saved and/or based on conditional logic whenever data is saved or imported. When adding/editing an alert, you will need to 1) set how the alert gets triggered, 2) define when the notification should be sent (including how many times), and 3) specify the recipient, sender, message text, and other settings for the notification. For the message, you may utilize customized options such as rich text, the piping of field variables (including Smart Variables), and uploading multiple file attachments. [Learn more](#)

My Alerts Notification Log

+ Add New Alert Re-evaluate Alerts

Upload or download Alerts

- Upload Alerts (CSV)
- Download Alerts (CSV)

New feature: Reorder alerts on Alerts & Notifications page

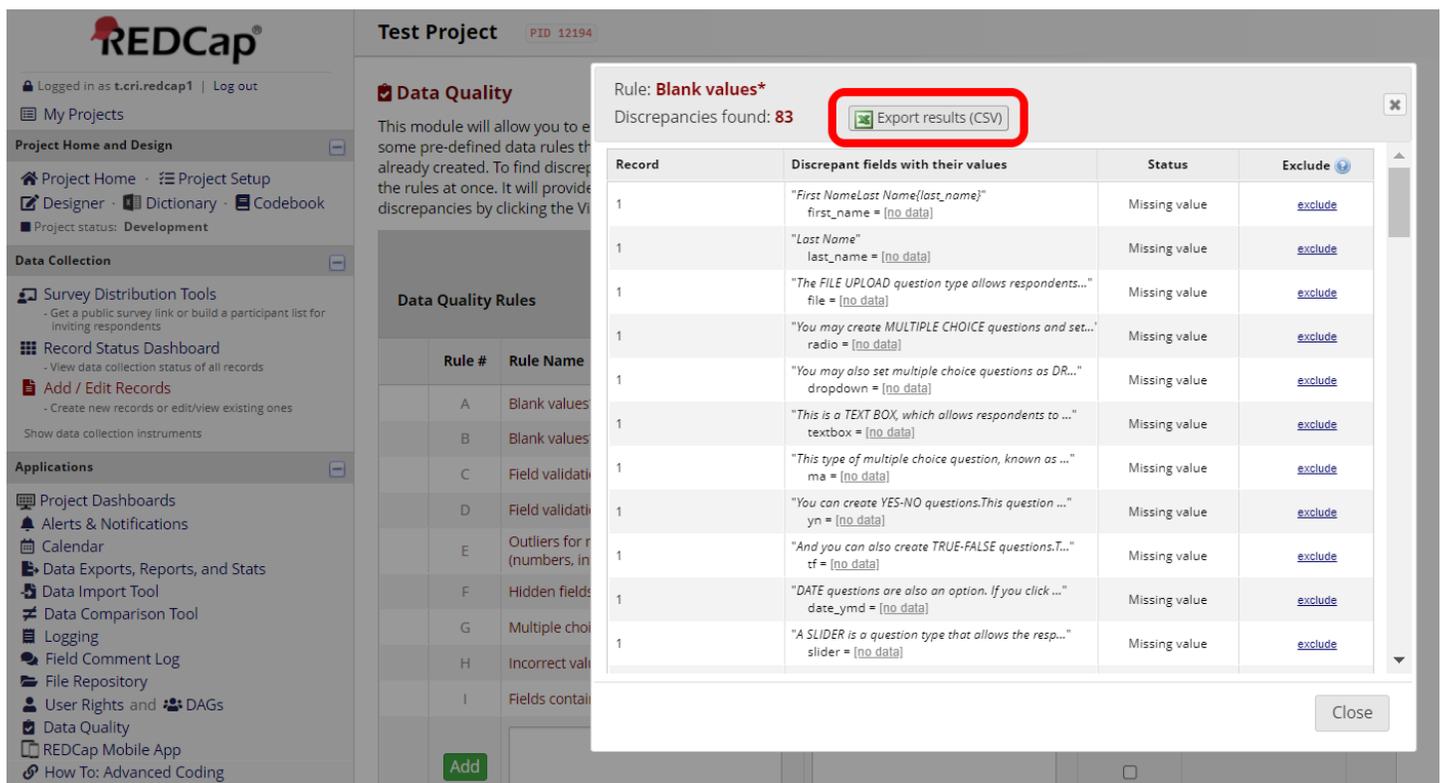
In the options menu for any given alert, a user can select an alert to be moved to another position on the Alerts & Notifications page. When this is done, it notifies the user that moving the alert will in most cases cause the alert numbers to be renumbered for many existing alerts (since they are numbered based on their order). However, their alert title and unique alert ID will not change during this process.

New feature: 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: Export Data Quality rule results

After running a data quality rule, users may export the results/discrepancies of the rule as a CSV file. The CSV file will be structured exactly like a data export/import file, which should allow for faster and easier cleaning of data so that values can be fixed and then re-uploaded as a data import.



The screenshot shows the REDCap interface for a 'Test Project' (PID 12194). The 'Data Quality' module is active, showing a list of rules. A modal window is open for the 'Blank values*' rule, which has found 83 discrepancies. The modal contains a table with the following columns: Record, Discrepant fields with their values, Status, and Exclude. The 'Export results (CSV)' button is highlighted with a red box.

Record	Discrepant fields with their values	Status	Exclude
1	"First NameLast Name(last_name)" first_name = [no data]	Missing value	exclude
1	"Last Name" last_name = [no data]	Missing value	exclude
1	"The FILE UPLOAD question type allows respondents..." file = [no data]	Missing value	exclude
1	"You may create MULTIPLE CHOICE questions and set..." radio = [no data]	Missing value	exclude
1	"You may also set multiple choice questions as DR..." dropdown = [no data]	Missing value	exclude
1	"This is a TEXT BOX, which allows respondents to ..." textbox = [no data]	Missing value	exclude
1	"This type of multiple choice question, known as ..." ma = [no data]	Missing value	exclude
1	"You can create YES-NO questions.This question ..." yn = [no data]	Missing value	exclude
1	"And you can also create TRUE-FALSE questions.T..." tf = [no data]	Missing value	exclude
1	"DATE questions are also an option. If you click ..." date_ymd = [no data]	Missing value	exclude
1	"A SLIDER is a question type that allows the resp..." slider = [no data]	Missing value	exclude

New feature: New API "Export Logging" method

This new API method allows users to export a project's logging via the API using very similar methods and filters as in the project's user interface. See the documentation for all filter parameters that are available.

New feature: New “:link” piping option for File Upload fields

If piping using the ':link' option for a File Upload field, such as [my_field:link], the file's filename will be displayed as a clickable hyperlink for downloading the file, which works on webpages and also inside the body of email text (i.e., survey invitations or Alerts & Notifications).

New feature: Auto-numbering of repeating instances for data imports

When using repeating events or repeating instruments, it may be difficult when performing dynamic imports of data for these because it is not easily known how many repeating instances already exist in a project for a given repeating event/instrument, thus often forcing users to invent clever ways to determine this, such as performing data exports beforehand and then dynamically determining what the next repeating instance number should be. However, that is no longer necessary. When performing a data import now for a repeating event/instrument, users may use the literal value “new” as the value for the “redcap_repeat_instance” field in their data import. By doing so, REDCap will perform the instance auto-numbering on its own to increment the repeating instances properly based on the highest numbered instance that already exists in the saved data in the project.

New feature: New survey option “Save a PDF of completed survey response to a File Upload field”

On the Survey Settings page in the Online Designer, users may select a File Upload field in the project where a static PDF file of a participant’s survey response will be stored immediately after they complete the survey. For longitudinal projects, if the target field exists on multiple events, users may set this feature so that it stores the PDF in the selected field in the current event (default) or else in a specific event in the project. Thanks to Philip Chase and his team at University of Florida for their inspiration for this feature, in which it was based on their “Save Survey PDF to Field” external module. NOTE: Upgrading to REDCap 10.6.0 will *not* automatically disable the “Save Survey PDF to Field” module if it is installed and enabled on any projects, nor will it transfer the saved settings of that module into this new feature in REDCap.

Survey Customizations:

Question Numbering
For custom numbering, each question's number will be blank by default until manually added via the Online Designer or Data Dictionary.

Auto numbered

Question Display Format
One page or multiple pages? Section headers, which begin new sections on the instrument, will serve as the page break in a multi-page survey, in which each page will begin with a section header.

All on one page

Display page numbers at top of survey page

Hide the 'Previous Page' button (i.e., Back button) on the survey page
(prevents respondents from going back to previous pages)

Allow participants to download a PDF of their responses at end of survey?
Display a button for the participant to download a PDF file of their responses for the survey they just completed.

No

This option will not be available if the Survey Auto-continue or Survey Queue auto-start option is enabled. Also, if a field utilizes the @HIDDEN action tag, it will not be displayed in the PDF.

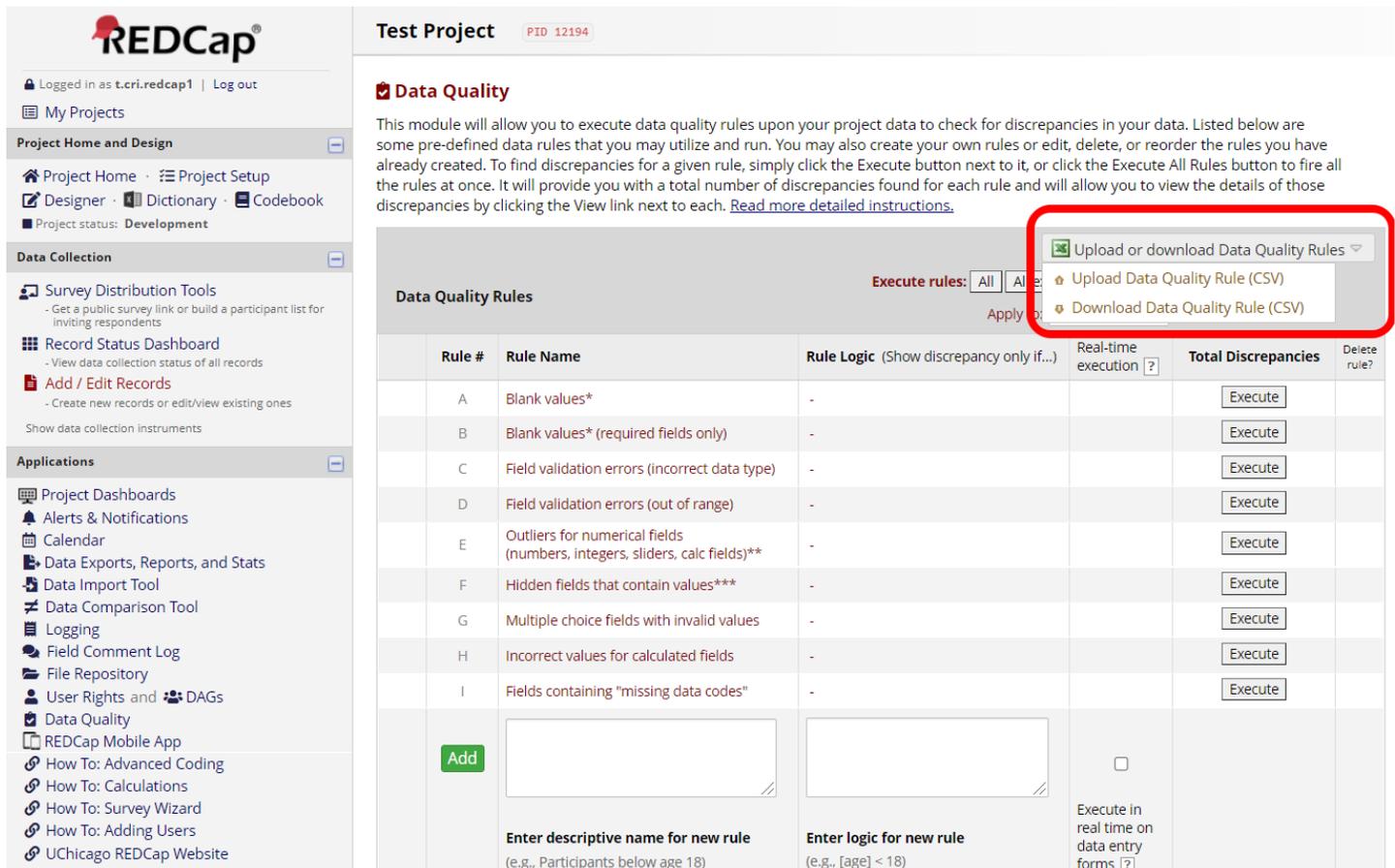
Save a PDF of completed survey response to a File Upload field
A PDF copy of the survey response will be immediately stored in the field selected on the right whenever a participant completes this survey.

file "The FILE UPLOAD question type allows respond

Choose a File Upload field from the drop-down above to enable this feature. Tip: If desired, the field may exist on the survey instrument that is triggering it, in which the field can be hidden on the survey page using the action tag @HIDDEN-SURVEY. Note: This feature cannot be triggered by submitting a data entry form EXCEPT only when a user clicks the 'Save & Mark Survey as Complete' button on the data entry form. Note: If the current survey settings allows participants to return to completed responses, then any existing PDFs that have already been stored in this File Upload field will be overwritten by any new ones if the survey is completed again.

New feature: Data Quality Rule import/export

The Data Quality page in a project now displays a drop-down list of options for users to import/export custom Data Quality rules via a CSV file. Note: This does not apply to the pre-defined DQ rules (rules A-I). Also, when DQ rules are imported, the process is additive only, meaning that the CSV upload cannot replace or edit existing DQ rules but will only add new ones to the project.



The screenshot shows the REDCap interface for a project named "Test Project" (PID 12194). The left sidebar contains navigation options like "Project Home and Design", "Data Collection", and "Applications". The main content area is titled "Data Quality" and includes a brief description of the module. Below the description is a table of "Data Quality Rules" with columns for Rule #, Rule Name, Rule Logic, Real-time execution, Total Discrepancies, and Delete rule?. A dropdown menu is open, showing options to "Upload or download Data Quality Rules", "Upload Data Quality Rule (CSV)", and "Download Data Quality Rule (CSV)". Below the table is an "Add" button and two input fields for creating a new rule: "Enter descriptive name for new rule" and "Enter logic for new rule".

Rule #	Rule Name	Rule Logic (Show discrepancy only if...)	Real-time execution ?	Total Discrepancies	Delete rule?
A	Blank values*	-		<input type="button" value="Execute"/>	
B	Blank values* (required fields only)	-		<input type="button" value="Execute"/>	
C	Field validation errors (incorrect data type)	-		<input type="button" value="Execute"/>	
D	Field validation errors (out of range)	-		<input type="button" value="Execute"/>	
E	Outliers for numerical fields (numbers, integers, sliders, calc fields)**	-		<input type="button" value="Execute"/>	
F	Hidden fields that contain values***	-		<input type="button" value="Execute"/>	
G	Multiple choice fields with invalid values	-		<input type="button" value="Execute"/>	
H	Incorrect values for calculated fields	-		<input type="button" value="Execute"/>	
I	Fields containing "missing data codes"	-		<input type="button" value="Execute"/>	
<input type="button" value="Add"/>	<input type="text" value="Enter descriptive name for new rule (e.g., Participants below age 18)"/>	<input type="text" value="Enter logic for new rule (e.g., [age] < 18)"/>	<input type="checkbox"/>		<input type="checkbox"/>

New feature: Added "Language of text to be spoken" for the "Text-To-Speech" survey functionality

For several years, REDCap has had a Text-to-Speech feature available on the Survey Settings page for surveys that, when enabled, allows questions and other text on survey pages to be converted into natural-sounding audio for the participant to hear. Up until now, it supported English only, but now REDCap users may utilize the Text-to-Speech feature in a variety of non-English languages and voices, assuming that the survey text is in a non-English language. This includes Arabic, Brazilian Portuguese, English (UK and US), French, German, Italian, Japanese, and Spanish (Castilian, Latin American, and North American).

Text-To-Speech functionality
(Allows text on survey page to be read audibly to participants.)
 When enabled, icons will be displayed next to all text on the survey page, and when clicked, the text will be read out loud to the participant (must have computer speakers turned on).

Enabled (initially Off but can be turned On b ▾)

Language of text to be spoken
 * Does not perform translation but only reads the text as is.

NOTICE: All text that is spoken is sent to the Text-to-Speech API service. Be advised that Identifier fields will *not* be sent to the service.

English - United States (Female) ▾
 Arabic (Male)
 Brazilian Portuguese (Female)
 English - United Kingdom (Female)
 English - United Kingdom (Male)
 English - United States (Female)
 English - United States (Male)
 French (Male)
 French (Female)
 German (Female)
 German (Male)
 Italian (Female)
 Japanese (Female)
 Spanish - Castilian (Male)
 Spanish - Castilian (Female)
 Spanish - Latin American (Female)
 Spanish - North American (Female)

Survey Access:

Response Limit (optional)
(Maximum number of responses to collect. Prevents respondents from starting the survey after a set number of responses have been collected.) ?

Will include (e.g., 150) If left blank, the survey will include all responses.

Will include partial and complete responses.

Custom text to display to respondents:

Paragraph ▾

☰ ☱ ☲ ☳ ☴ ☵ ☶ ☷

↶ ↷ ↸ ↹ ↺ ↻

New feature: Users may re-evaluate some or all Automated Survey Invitations for all records in a project

If an ASI has been modified after data has already been entered in the project, users may click the “Re-evaluate Auto Invitations” button in the Online Designer, which will re-evaluate selected ASIs for all records to ensure that invitations get properly sent or scheduled based on the new conditions of the ASI (otherwise they could only be triggered if each individual record had data modified). If a user modifies the conditional logic of an ASI, it will recommend that they utilize the “Re-evaluate Auto Invitations” functionality. If an ASI has the “Ensure logic is still true...” option checked, then it is possible during this process that some already-scheduled invitations might get removed (and thus would no longer be scheduled) based on the new conditions.

New feature: Users may re-evaluate some or all Alerts & Notifications for all records in a project

If an alert has been modified after data has already been entered in the project, users may click the “Re-evaluate Alerts” button on the Alerts & Notifications page, which will re-evaluate selected alerts for all records to ensure that notifications get properly sent or scheduled based on the new conditions of the alert (otherwise they could only be triggered if each individual record had data modified). If a user modifies the conditional logic of an alert, it will recommend that they utilize the “Re-evaluate Alerts” functionality. If an alert has the “Ensure logic is still true...” option checked, then it is possible during this process that some already-scheduled notifications might get removed (and thus would no longer be scheduled) based on the new conditions.

IMPROVEMENTS and CHANGES:

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).
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).
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: 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.
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.
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.
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)
Improvement: When viewing files in the File Repository that are archived from a data export, it now displays the data export details (as seen on the Logging page) for each export listed in the table on the "Data Export Files" tab. This provides more context regarding the contents of the data in the archived export files.
Change: The @PREFILL action tag has been renamed to @SETVALUE, which more accurately captures how it behaves. Some confusion had occurred regarding this action tag's behavior simply because of its name. This change to the name is backward compatible so that projects already using @PREFILL will still work with its legacy counterpart (i.e., @PREFILL and @SETVALUE will work equivalently), but @SETVALUE will be the preferred name going forward. The description of the @SETVALUE action tag in the Action Tags documentation notes this name change.

Change: Any fields using the @PREFILL/@SETVALUE action tag will no longer be read-only/disabled on survey pages and data entry forms but will be editable. Some users had complained of the read-only attribute as being too restrictive and inflexible, thus preventing some valid use cases. If users wish to make the field read-only, it is recommended they simply add the @READONLY action tag as a means of maintaining the previous read-only behavior.

Improvement: Assign a user to a DAG at the same time as adding the user to the project - Whenever a user is being added to a project via the User Rights page, if Data Access Groups are being utilized in the project, a new option will appear (whether if adding the user with custom rights or if assigning them to a user role) that allows you to assign the user to a DAG at the same time as adding them to the project. This helps prevent a common issue where a newly added user might temporarily have access to the records of *all* DAGs in the project prior to the user being assigned to a DAG immediately after getting added to a project. By making this two-step process a single step, it avoids possible data access issues for users who need to be assigned to a DAG.

Improvement: When exporting a PDF of all record data via the "Other Export Options" page, a copy of the downloaded PDF will now be archived and stored in the File Repository, similar to how other data exports (i.e., CSV, SPSS) are archived. This will help REDCap users keep better track of exactly what data was downloaded by someone when they export a PDF of all records in the project. Note: This does not apply to other PDF exports but only to the "all records" PDF export on the "Other Export Options" page.

Improvement: The project logging page now displays more information for PDF Exports that contain data, such as displaying the record name, event, and instrument for the downloaded PDF.

Change/improvement: When using the "Upload Users (CSV)" option on the User Rights page, it now displays a checkbox option in the dialog to allow the user to optionally send an email notification to all new users being added to the project via this import process. In previous versions, no users would be notified via email if they were added to the project via the "Upload Users (CSV)" option but only if added using other methods.

Improvement: Minor performance improvement when loading the Participant List page, especially for surveys that are not repeating instruments and surveys that do not exist on repeating events.

Change/improvement: The User Access Dashboard now displays "Last logged activity" for each project displayed on that page.

Change/improvement: The "Phone (North America)" field validation now allows phone numbers that begin with "800" and "811".

Change: Removed the "up arrow" and "down arrow" icons used to represent Field Embedding because the arrow was potentially confusing to some users, especially in the Online Designer. (Ticket #103988)

Change: If a user in a project with lots of calc fields and/or lots of records attempts to execute Data Quality rule H in which it ends with an error after running too long or running out of server memory, it will now display the "Fix calcs now" button inside the results dialog (despite the error occurring) to at least allow the user to attempt to fix the calcs little by little even though the initial evaluation process of the calcs has failed.

Improvement: If a project contains more than 25,000 records, the Logging page will no longer display the record filtering drop-down at the top of the page but instead will display an auto-complete text box to allow the user to enter the record name if they wish to filter the logging by record. This behavior is similar to the "Add/Edit Records" page when not using record auto-numbering if a project contains more than 25,000 records.

Change: More tweaks to improve the style of the text displayed inside the rich text editors because they still did not quite match the general style and CSS classes of text on REDCap webpages.

Change: The language of the "Stop Action" prompt (displayed on survey pages when a Stop Action has been triggered) has been slightly modified to be more succinct and clear.

Change: The input element for @CALCTEXT fields was made wider on survey pages and data entry forms to be able to fit more viewable text.

Change: In addition to the stock Action Tags that come bundled with REDCap, the field view in the Online Designer now displays custom action tags (in pink text below the field) that are utilized by hooks or external modules. (Ticket #101045)
Change: New "Applications Overview" video added to Training Videos
Change/improvement: When viewing the Survey Settings page for a repeating instrument, the "Location of the button on survey" option for the "Allow respondents to repeat the survey" setting now includes a new choice not to display the repeating survey button at all on the survey page. This is useful if users are utilizing the Survey Queue as the path for participants to enter new responses for the repeating responses instead of displaying the repeating survey button on the survey page itself.
Change: Added a tip in Step 3 when creating a new report to inform users how to use [X-instance] Smart Variables to filter repeating data. This tip is only displayed in projects that have repeating instruments and/or repeating events.
Improvement: Custom ranges (min/max) for slider fields - Users may now set a custom minimum and/or custom maximum integer value for slider fields. The default min and max is still 0 and 100, respectively. If no value is entered for the min or max value, it will assume the default value. These can be set via the Edit Field popup in the Online Designer, and via the "Text Validation Min" and "Text Validation Max" columns in the Data Dictionary.
Change/improvement: The maximum repeating instance number that can be added for a repeating instrument or repeating event has been increased from "9999" to "32767".
Improvement/change: When using the ":inline" piping option for File Upload files inside an email body (e.g., survey invitations, alerts), if the uploaded file is not an image file, it will still attach the file to the email but will display the file's filename in the email text as an alternative to displaying it as an inline image.
Change: In order to help emphasize the "NIH/NLM Catalog" more in the new Field Bank feature, the "REDCap Catalog of Common Data Fields" has been removed indefinitely as an option in the Field Bank dialog in the Online Designer.
Change: Some language on the Survey Settings page was modified for clarity with regard to the Time Limit for Survey Completion feature to note that it is not applicable to survey links sent via Alerts & Notifications.
Change: For longitudinal projects that are in production, the Define My Events now displays an extra warning that warns that renaming events could cause disastrous effects if any unique event names are utilized in conditional logic, branching logic, calculations, reports filters, data quality rules, etc.
Improvement: In the Online Designer, any fields that have action tags will have those action tags listed immediately below the field in the table on that page. This makes it easier to know if a field has a certain action tag without having to open the Edit Field dialog for the field.
Improvement: Field embedding can now be used for embedding a Descriptive field inside another field (even though descriptive fields do not have an actual input element for saving data). Embedding a descriptive field would merely relocate the field's label to the new location where it is embedded. This is typically only useful if the descriptive field has branching logic, in which you could use branching logic to make the descriptive field's text appear conditionally in a specific place on the page.
Improvement: Field variables and Smart Variables can now be piped into the "src" attribute of HTML image tags ("img"). Previous versions did not allow this but would allow the piping of values into the "href" attribute of hyperlinks. Now both are possible. Note: The value being piped into the "src" attribute must have already been saved prior to the page loading, which is how piping for the "href" attribute has always worked.
Improvement: The Logging page in a project now defaults to only displaying the logged events from the past week, although users can always adjust the filter settings to expand the time range values after initially loading the page. This change makes the Logging page load much faster when initially loaded by a user.
Improvement: The Logging page in a project now has helpful buttons to quickly adjust the time range filters to Past Day, Past Week, Past Month, Past Year, and all time ("no limit") to make it easier for users to view the

logging from various time ranges.
Improvement: The Logging page in a project now has more download options for exporting the logging. In addition to exporting all logged events, there are now the following new buttons: 1) Export all pages using current filters and 2) Export current page.
Improvement: When downloading a PDF of a data collection instrument containing a File Upload field that is embedded in another field, it will now display the file name of the uploaded file in the PDF rather than the doc_id number (i.e., the raw data value). This change only involves embedded fields since normal/non-embedded File Upload fields already display the file name of the file in the PDF.
Improvement: File Upload fields and Signature fields may now be used in piping. If you are piping *from* a File Upload field or Signature field, the field's numerical value will be piped by default, but you may pipe the original filename of the uploaded file by appending the ':label' option, such as [my_field:label].
Change/improvement: Users are now permitted to import data values for Biomedical Ontology fields. In previous versions, this was not allowed and would return an error message when a user attempted this. The Data Import Tool now displays a warning (instead of an error) that informs users that importing data for such fields is allowable but is not recommended because the value might not display correctly if viewed afterward on a report or in the data entry interface, in which this is caused by the fact that the label is missing because it has not been fetched via the BioPortal web service and then cached in REDCap's database tables. (Ticket #8096)
Change: On the Survey Settings page, the e-Consent Framework setting "Allow e-Consent responses to be edited by users?" is now pre-selected by default when enabling the e-Consent Framework.
Improvement: The "E-signature and Locking Management" page in a project now displays information with regard to record-level locking, whereas in previous versions it only displayed information for instrument-level locking. (Ticket #95496)
Change: Added more informative text in the Biomedical Ontology information popup regarding the use of the BioPortal API web service and also how to contact BioPortal directly if a user has specific questions about their service.
Change: Added the project PID to the prepopulated email subject field when clicking the blue "Contact REDCap administrator" button on a project's left-hand menu.
Change: When uploading a file to the File Repository and when uploading an attachment to an alert, it now specifies the max file upload size in each location.
Change: On the Data Quality page, the text boxes used for adding/editing custom data quality rules were enlarged and are now resizable.
Improvement: On a user's My Profile page, there is a new setting under "Notification Preferences for REDCap Messenger" to enable/disable email notifications specifically for General Notifications and System Notifications. This setting will be enabled by default for all users. This is intended to help users who ignore messages from Messenger to become more informed about messages sent from administrators (via General Notifications) and to become more aware of new features (via System Notifications). Note: Users with this option enabled will not receive an email notification for General/System Notifications if they have not logged into REDCap in the past 6 months. Also, if you wish to automatically disable this setting for all users, simply run the following SQL immediately after the upgrade has completed: <code>update redcap_user_information set messaging_email_general_system = 0;</code>
Change: When editing a field in the Online Designer, if the field's variable name is longer than 26 characters, the page no longer gives the warning popup about this when clicking the Save button in the Edit Field dialog but only at the point when the variable name is actually changed. This new behavior should be a lot less annoying to users with very long variable names.
Change: Some warning text was added to the Edit Alert dialog on the Alerts & Notifications page in the event that the user selects the third radio option for Step 1A while selecting the "every instance of a repeating

<p>instrument" option in Step 1C, which can cause the alert to be triggered off of every new repeating instance that is added to *any* repeating instrument in the project. Such behavior is often not intended, and could mistakenly cause many unintended alerts to be sent. New warning text: "WARNING: It is generally not recommended to use 'Using conditional logic...' in Step 1A together with the option '...on every instance of a repeating instrument' in Step 1C. If these are used together, that means that this alert will be trigger by EVERY repeating instance that is saved for ANY repeating instrument in the project."</p>
<p>Change: When a user submits production changes via Draft Mode in the Online Designer, if the changes are approved automatically, it no longer sends an email to the user themselves. This email was superfluous since the user was already notified of this in the user interface. (Ticket #91415)</p>
<p>Change/bug fix: When clicking the "Re-evaluate Alerts" button on the Alerts & Notifications page, it was only re-evaluating alerts that had only conditional logic and thus was not re-evaluating alerts that had the first two options selected in Step 1A of the Edit Alert dialog (i.e., "When a record is saved on a specific form/survey..."). The Re-evaluate Alerts now considers all three options in Step 1A when it is evaluating.</p>
<p>Improvement: When deleting an invitation from the Survey Invitation Log (either as a single invitation or using the multi-select option to delete many invitations at once), it now provides a new option in the dialog prompt to "Permanently cancel this invitation?", in which the phrase "permanently cancel" implies that the invitation cannot be re-triggered/scheduled again in the future even if the ASI conditions are met again. If the user chooses to uncheck the option, then the scheduled invitation will be removed, but could possibly get re-triggered in the future if the ASI conditions are met again (assuming it was originally scheduled via an ASI).</p>
<p>Improvement: The Survey Invitation Log has a new filter drop-down option to view "only deleted invitations" (i.e., permanently cancelled invitations).</p>
<p>Improvement: Import Records API method has a new parameter "csvDelimiter" to specify the delimiter character when sending data in CSV format. Options include: comma ',' (default), 'tab', semi-colon ';', pipe ' ', or caret '^'.</p>
<p>Improvement: Smart Variables and regular field variables can now be piped into the URL of Project Bookmarks. Note: While many Smart Variables can be piped successfully outside of a record context (e.g., [redcap-base-url]), all field variables (e.g., [age], [dob]) and some Smart Variables (e.g., [record-name], [previous-event-name]) can only be piped into the URL while the user is inside a record context, such as viewing the Record Home Page or data entry form. (Ticket #75783)</p>
<p>Change: Slight re-organization of buttons at the top of the instrument list on the Online Designer.</p>
<p>Improvement: When importing a CSV file of data on the Data Import Tool or when importing a CSV Data Dictionary, users may now specify the delimiter of the CSV file as a Comma (default), Tab, or Semicolon.</p>
<p>Improvement: In previous versions, the DAG Switcher would not be very performant if there existed very many users and/or Data Access Groups within a project, thus the DAG Switcher would (by design) be automatically disabled for projects in those situations, which was not ideal with regard to user experience. The DAG Switcher is now no longer limited in that way and will now function fully regardless of there being many users and DAGs in a given project.</p>
<p>Change: Due to the amount of users complaining about the fact that SAS exports will truncate long field labels and long multiple-choice option labels, this behavior has been changed so that those will no longer be truncated in the SAS syntax file for SAS data exports. Note: This behavior to truncate labels in SAS exports was originally changed in REDCap 10.0.3.</p>
<p>Improvement: The "Response Limit" option on the Survey Settings page now allows for the use of the rich text editor when defining custom text to display to respondents on the survey when limit is reached.</p>
<p>Change: For the option "Survey-specific email invitation field" on the Survey Settings page, it adds a note that the survey-specific email field is not required to be set if a project-level email field has already been defined in the project. This was added to reduce confusion for users.</p>
<p>Change: When viewing the Participant List page, if the survey has the "survey-specific email invitation field"</p>

enabled, it will now display a small notice about this fact near the top of the Participant List table to inform the user and provide more clarity regarding the source of the email addresses being used for that particular survey.

Change: A warning message is now displayed for users that attempt to use both the Survey Queue and Survey Auto-Continue features together in the same project. If one is already enabled while attempting to enable the other, the warning will inform the user that these two features can sometimes conflict with each other.

Improvements to the Data Resolution Workflow feature:

- When a user is opening a new data query and assigning the query to a user, there are new options to send a notification to the assigned user via email and/or REDCap Messenger to inform them about their query assignment.
- Attachment files that have been uploaded to an opened data query may now be deleted after the fact, if needed. Note: As a precaution, only REDCap administrators may delete such attachments.
- For existing data queries, users may now be assigned to an opened query after the fact, and if the data query already has a user assigned to it, it may be reassigned to another user.

Change: When a user accesses a project for which their user privileges have expired, it now tells them to contact the project owner rather than telling them to contact the REDCap administrator.

Improvement: In REDCap 10.0.2, a new feature was added to the Online Designer's "Add/Edit Branching Logic" dialog to help users modify branching logic for many fields at once if they had the exact same branching logic. Now this has been improved further so that if users do not want to keep seeing this prompt when editing branching logic, a new checkbox in the dialog that says "Do not show this message again" can be checked, which will prevent the prompt from being displayed in that project for that user during the remainder of their REDCap session.

Change: To be more inclusive in our community, all references to the terms "blacklist" and "whitelist" have been replaced with "blocklist" and "allowlist", respectively, in the REDCap user interface, the REDCap code, and in all database, table names and columns.

Change: When exporting data to a stats package (R, Stata, SPSS, SAS), if a field contains a long field label, it now truncates the field label in the center of the text (i.e., putting an ellipsis in the middle) to make it more compatible with and easier to read in certain stats packages.

Change: When copying a project via the Copy Project page, Alerts & Notifications will now be automatically set to "Deactivated" status in the newly created project, similar to Automated Survey Invitations when copying a project. This is to ensure that they do not start getting triggered and start sending if all the project records were copied from the original project.

Change: In previous versions, date fields that have Y-M-D date format would allow M/D/Y format values (i.e., American format dates with slashes instead of dashes) to be entered, in which it would automatically reformat the value to a Y-M-D format date with dashes. This is a very old behavior from the earliest days of REDCap that was meant to be a convenience for users, who were mostly from the U.S. at that time. However, since that time REDCap has grown internationally, and it is no longer U.S.-centric as it was in the early days. It makes more sense at this time to remove this old behavior so that Y-M-D date formats only accept Y-M-D formatted values. (Ticket #86446)

Improvement: When editing a field's branching logic in the Online Designer's "Add/Edit Branching Logic" dialog, when saving the branching logic for a given field, it will now check if any other fields in the project have identical branching logic and will prompt the user to ask them if they want to change the branching logic accordingly for all fields having the same branching logic.

Change: When viewing an Automated Survey Invitation in which the From address belongs to a user that no longer has access to the project, it would display the note "[email no longer belongs to a project user]" next to the email address, but it would not display that note for Administrators. It now displays it to both regular users and Administrators to eliminate any confusion.

<p>Change: When viewing an alert on the Alerts & Notifications page in which the alert's From address belongs to a user that no longer has access to the project, it now displays the note "[email no longer belongs to a project user]" next to that email address in the drop-down list.</p>
<p>Improvement: Survey pages are now considered ADA Section 508 compliant. The REDCap Development Team at Vanderbilt has been collaborating with the CDC to improve the accessibility of REDCap overall. While the user-facing side of REDCap (i.e., non-survey pages where users must authenticate) is not 508 compliant, it continues to be improved with regard to accessibility over time. But according to the CDC's recommendations and testing of REDCap, survey pages in REDCap do meet the minimum requirement for ADA Section 508 compliance.</p>
<p>Change: The @READONLY action tags now display the field labels as slightly less faded out (using 60% opacity instead of 50% as in previous versions), and the text of drop-downs, text boxes, and textarea boxes that have a @READONLY action tag now have a darker text to make them more readable despite being disabled on the page. (Ticket #85396)</p>
<p>Change: Removed the thick black border seen on input fields that have focus for Chrome 83 and higher, which was by default adding the black border to all input fields on all webpages.</p>
<p>Change/improvement: Added better error detection to make the data import process more accurate and informational by ensuring that any datetime_seconds values that are missing a "seconds" component will be reformatted to append ":00" and if any datetime values are missing a "minutes" component it will be reformatted to append ":00", in which it will display a warning to the user on the Data Import Tool page to inform the user that these modifications are happening. Also, if the first two digits of the "year" component are missing for a date or datetime value, it now displays a warning to inform the user that the full year value will be estimated and will note the resulting estimated year value.</p>
<p>Change: On the Survey Settings page, The Save & Return Later option "Allow respondents to return without needing a return code" now has a note immediately below it to encourage users not to use this survey option if they are collecting identifying information (PHI, PII) on their survey.</p>
<p>Change: If enabling the Survey Login feature in a project containing repeating instruments or repeating events, it now displays the clarifying message in the Survey Login setup dialog to users so that they are aware: "NOTICE: Fields existing on repeating instruments/events will not work as login fields". (Ticket #85208)</p>
<p>Change: The project ID (PID) of a project is now displayed immediately after the project title at the top of every project page. This will make it easier for users to obtain their project's PID when attempting to identify their project to administrators.</p>
<p>Change: If a project contains a large number of users and/or Data Access Groups, it now automatically disables the DAG Switcher feature. This is done because if the table becomes very large, it can cause a major slowdown in the user's browser and possibly cause it to crash. So any projects where Users X DAGs > 10K, the DAG Switcher will be disabled and will not be usable. Also, if a project has a count of Users X DAGs between 5K and 10K, it will still display the DAG Switcher, but it will auto-disable the floating headers and search features on the DAG Switcher table in order to prevent browser slowness. (Ticket #84610)</p>
<p>Change: When exporting data to SAS, the line "OPTIONS nofmterr;" is now added to the SAS script to prevent any formatting issues from throwing fatal errors.</p>
<p>Improvement: New PDF customization to hide the Record ID from the PDF header. In the "PDF Customizations" section of the "Additional Customizations" dialog on the Project Setup page, users may set this option to display or hide the record name in the top header of every PDF page when downloading a PDF with data for a record. This is a project-level setting, so setting it applies to all PDFs generated for records in the project.</p>
<p>Improvement/change: The sending of a survey confirmation email now gets logged on the project Logging page when a confirmation email has been set to send to a survey participant after having completed a survey, in which the logged event will note the record name, the To address, the From address, the email subject, and</p>

whether or not the email contained attachments (including the PDF of the participant's survey responses).
<p>Changes for long-standing quirks with calc fields and branching logic:</p> <ul style="list-style-type: none"> • Change: In previous versions, calculated fields could only utilize either numeric fields or date/datetime fields in the calculation. Now non-numeric fields may be used, most notably inside IF statements. For example, if ([field1] = "A", 0, 99). • Change: In previous versions, using > or < in branching logic would not always work as expected. For example, [a] > [b] would have to be formatted as [a]*1 > [b]*1 to work correctly 100% of the time, which is not intuitive. This is no longer required, in which [a] > [b] will work as one would expect in branching logic. Note: This does not apply to calc fields, which have never had this problem. • Change/improvement: The datediff() function used in branching logic and calc fields no longer requires the date format parameter ("ymd", "mdy", "dmy"). This was required for datediff() in calc fields and branching logic but was not required elsewhere, such as in report filters, DQ rule logic, ASI/Alert conditions, etc. The \$returnSignedValue parameter (if provided) can now be provided as the fourth parameter - e.g., datediff([dob], "today", "y", true). NOTE: Both of the date/datetime fields used in the datediff function must still be in the same date format ("mdy", "dmy", or "ymd"), so that is still a requirement.
<p>Improvement: A new send-time option has been added when setting up Automated Survey Invitations and Alerts & Notifications. When defining when the ASI/Alert should be sent, the option "Send after a lapse of time" has a new setting added so that, if desired, the user may set the time lapse relative to the value of a date or datetime field in the project. In previous versions, the time lapse setting could only be set relative to the time in which the ASI/Alert was triggered. That is still an option, but now users may also opt to send the ASI/Alert a certain amount of time either before or after the date/time of a specific field. This new setting will allow users to have greater control with regard to setting when ASIs/Alerts will be sent without getting too complicated in their setup, such as having to use complex logic (with datediff, etc.).</p>
<p>Improvement/change: Users are now able to utilize dots/periods/full stops in the codings of choices for checkbox fields. In previous versions of REDCap, this was not allowed for checkbox fields. (Ticket #83002)</p>
<p>Improvement/change: By popular demand, users may once again utilize dots/periods/full stops in Missing Data Codes. They are no longer forbidden. They were originally allowed for Missing Data Codes, but then removed in REDCap 8.5.0. Now that checkboxes can have dots/periods in their codings as of v9.9.0, it is no longer an issue for Missing Data Codes to use them too. (Ticket #83002)</p>
<p>Change: The downloadable Python example code provided in the API Playground has been improved.</p>
<p>Change: To wean users off of using Internet Explorer 9 and 10, any users using IE 9 or 10 will see a thin, yellow banner at the top of all project pages, which will inform them that their browser is not fully compatible with REDCap and thus will encourage them to upgrade to IE11 or use another browser. Technically, IE 9 and 10 will be supported till July 2020 in Standard Release, but this warning is mostly preemptive in preparation for that.</p>
<p>Change: For survey participants using Internet Explorer 6, 7, or 8, rather than failing silently, survey pages now display an error message letting them know that the page is not compatible with IE 6-8 and recommends they upgrade or use another browser.</p>
<p>Change: When clicking the "View past invitations" or "View past notifications" button on the Survey Invitation Log and Alert Notification Log, respectively, it now defaults to displaying the page with the most recently sent invitations/notifications, whereas previous versions would default to the first page (i.e., the oldest sent). This change should provide a more intuitive experience for users.</p>
<p>Change: When viewing reports, it now displays "report execution time" in seconds near the top of the report. This denotes the total server execution time that it took to create the report. Note: This does not account for the rendering time of the report (i.e., via JavaScript), which can sometimes take several seconds or more (if the report is large) for a user's web browser to actually render the report's HTML on the page.</p>
<p>Change: In the Online Designer's Edit Field dialog, the textarea boxes (field label, field choices, and action</p>

tags) are now slightly bigger and are all resizable.

Change: In a production project where repeating instruments/events are enabled, if a user opens the Repeating Instrument/Event setup dialog on the Project Setup page, in which one or more checkboxes are checked already in the setup, a warning dialog with red text will be displayed to inform the user that unchecking any of the checkboxes might cause data to be orphaned and thus will cause any data already collected from repeating instances to disappear indefinitely from the user interface, reports, and exports. This warning will help users to be aware of this possibility that might affect their data and thus might have otherwise caused confusion. (Ticket #66801)

Improvement: Adaptive and Auto-scoring instruments (i.e., PROMIS assessments) that have been downloaded from the REDCap Shared Library may now have their survey responses deleted via the Delete button at the bottom of the data entry form when viewing the survey response. In previous versions, if an Adaptive and Auto-scoring instrument had been partially completed or the wrong one had been taking accidentally, there was no way to remove the existing response since the whole response was locked afterward. Now the "Delete data for THIS FORM only" button appears at the bottom to allow users to remove the response if they wish to add another to replace it. (Ticket #77086)

Change/improvement: The text box fields for logic have been increased in size and made resizable for the following places: the Survey Queue setup popup in the Online Designer, the Add/Edit Branching Logic popup in the Online Designer, and the Advanced Filter Logic when creating/editing reports.

Improvement: New options for Alerts & Notifications:

- A "Trigger Limit" setting was added to Step 1 in the Add/Edit Alert popup that allows users to define where and to what extent within a record that the alert will be triggered. Its options include "only once per record", "only once per event", "only once per instrument regardless of the event", and others that are displayed if the project contains repeating instruments/events. The trigger limit will help users to limit alerts to only be triggered on certain parts of a record and/or so many times within a record to achieve the behavior they desire for their notifications. Note: For non-longitudinal projects that do not have repeating instruments, this option (Step 1C) will not be displayed at all since it would contain only one choice: "only once per record". (Ticket #70860)
- The "every time" option of the "Send it how many times?" setting in Step 2 has been expanded to have sub-options to provide more possible scenarios in which an alert will be triggered. In previous versions, the only option was to set an alert to be triggered "every time the form/survey in Step 1B is saved", but now it contains two new variations: "every time the form/survey in Step 1B is saved with new or modified data" and "every time the form/survey in Step 1B is saved with new or modified data (ignoring calc fields)".
- Recurrence maximum - When setting an alert to send multiple times in a recurring fashion in Step 2, a new option has been added to limit the maximum number of recurrences (i.e., the total times the alert will be sent on its repeated schedule). In previous versions, the alert would continue sending indefinitely at its defined interval (typically until conditional logic became no longer true), but now the alert can be set to repeat up to 9999 times at the interval that has been defined.

Improvement: If the Custom Record Label and/or Secondary Unique Field are being used in a project, their values will now be displayed on the Calendar page when viewing the Day or Agenda tab for any calendar event connected to a record in the project.

Improvement/change: On the Alerts & Notifications page, users may now edit a deactivated alert. This is especially useful if a user is setting up part of an alert and wishes to make incremental edits to the alert prior to re-enabling it.

Change: In the Add/Edit Alert popup on the Alerts & Notifications page, the Alert Expiration option has been moved upward in the popup so that it is now part of Step 2.