

REDCap

Longitudinal Studies & Surveys

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Goals & Agenda

Goals

- **Get started with:**
 - **Longitudinal Studies**
 - **Surveys**
 - **Data Integrity**

Agenda

- **Longitudinal**
- **Surveys**
- **Combining the Longitudinal & Survey Functionality**
- **Data Queries**
- **Interactive Q&A**



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Longitudinal



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Useful for:

- Long Term Studies
- Clinical Trials
- Recruitment & Enrollment Combinations
- Multi-Site Studies
- Repeating Surveys



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Advantages

- **Simplicity**
- **Recycling**
- **Progress Overview**
- **Scheduling**
- **Flexibility**

Disadvantages

- **Higher Learning Curve**
- **Enormous Record Status Dashboard**
- **Export Complexity**



Longitudinal Project

Arm 1

Event 1

Demographics Form
Eligibility Form

Event 2

Initial Visit Form
Clinical Measurement Form

Event 3

Visit Follow up Form
Clinical Measurement Form

Arm 2

Event 1

Demographics Form
Eligibility Form

Event 2

Alternative Initial Visit Form
Clinical Measurement Form

Event 3

Alternative Visit Follow up Form
Clinical Measurement Form



- **Defined by:**
 - **Arm Name**
 - **Arm Number**
- **“Group” Records (Drug A vs. Drug B)**
- **Can Differ in**
 - **Events**
 - **Forms**
- **No Record Transfers between Arms**
- **No Direct User Restriction Possible**



- **Defined by:**
 - **Event Name**
 - **Days Offset**
 - **Offset Range**
 - **Unique Event Name**
- **Use “Days Offset” to Order Events**
- **Each Event Can Contain Multiple Forms**
- **Basis for Schedule Generation**



Designate Instruments

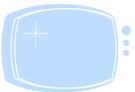
- Link Forms to Events
- Done per Arm
- Needs to be Done by an Admin in Production Mode

Data Collection Instrument	Enrollment (1)	Month 1 (2)	Month 3 (3)	Month 6 (4)	Month 9 (5)	Month 12 (6)	Month 18 (7)	Month 24 (8)	End of Study (9)
Eligibility Criteria	✓								
MDS AML Initial	✓								
MDS AML		✓	✓	✓	✓	✓	✓	✓	
Trigger Form	✓								
Assessment	✓	✓	✓	✓	✓	✓	✓	✓	✓
Other Assessment		✓	✓	✓	✓	✓	✓	✓	
Walk Test	✓	✓	✓	✓	✓	✓	✓	✓	
Demographics (survey)	✓								
Patient Decisions (survey)	✓	✓	✓	✓					
Patient Questionnaire (survey)	✓	✓	✓	✓	✓	✓	✓	✓	
Disease Evaluation	✓	✓	✓	✓	✓	✓	✓	✓	
Chemo		✓	✓	✓	✓	✓	✓	✓	

Event-Form Linkage Example



- 1. Create Forms**
- 2. Enable Longitudinal Functionality**
- 3. Check User Rights**
- 4. Define Arms**
- 5. Define Events**
- 6. Link Forms & Events**
- 7. Test, Test & Test Again**
- 8. Start Collecting Data**
 - 8a. Setup Schedules (Optional)**



- Go to Add/Edit Records
- Select Arm (in Case of Multiple Arms)
- Select Record or Create New One
- Select Target Form in the Target Event
- Start Entering

Study ID 1 (Doe, John)

Data Collection Instrument	Events for Arm 1: Drug A				
	Intake (1)	1 Month (2)	2 Months (3)	3 Months (4)	Evaluation (5)
Demographics (survey)	<input checked="" type="radio"/>				
Baseline Data	<input checked="" type="radio"/>				
Month 1 Data (survey)		<input checked="" type="radio"/>			
Month 2 Data (survey)			<input checked="" type="radio"/>		
Month 3 Data (survey)				<input checked="" type="radio"/>	
Completion Data					<input checked="" type="radio"/>

NEW Study ID 5

Data Collection Instrument	Events for Arm 2: Placebo		
	Intake (1)	Follow- Up (2)	Evaluation (3)
Demographics (survey)	<input checked="" type="radio"/>		
Baseline Data	<input checked="" type="radio"/>		
Month 1 Data (survey)		<input checked="" type="radio"/>	
Month 2 Data (survey)		<input checked="" type="radio"/>	
Month 3 Data (survey)		<input checked="" type="radio"/>	
Completion Data			<input checked="" type="radio"/>



- **Optional**
- **Automated Generated Schedules**
 - **Per Participant**
 - **Based on Arms & Events**
- **No Outside Linking Possible (at the moment)**
- **Multiple views**
- **Event Status**
- **Limited User Rights**



- **Multiple Rows for Participants**
 - **Export a Row for Each Event in Each Arm**
 - **Lots of 'Blank' Spaces**
- **Use a Statistical Export Opposed to Excel**
- **Re-Import was Problematic**
 - **Upload All Events at Once**
 - **1 Row Per Record Per Event**



Two Variations of Branching Logic

Classic Branching Logic

- **Normal Syntax**
- **[var1] = '13'**

Longitudinal Branching Logic

- **Can Cross Forms & Events**
- **Have to Define the Event Name**
- **[event_1][var1] = '13'**



Surveys



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- **No Login Needed**
- **Ideal for:**
 - **Participant Data Entry**
 - **Recruitment**
- **Public Links versus Invites**
- **Notifications**
- **Automated Invites**
- **Survey Queue**



Invitations vs. Public Link

Both Managed through the “Manage Survey Participant” Link

Public Links

- Ideal for Recruitment
- Initially Anonymous
- Can be Filled out Multiple Times
- Auto-generated by REDCap (short link available)
- Only Available for the First Survey of Each Arm



Personal Invitations / Automated Invitations

- Email Required
- Inherently Identified
- Traceable Completion Rates
- Customizable Invitations
- Initial invitations only available for the first survey of each arm
- Follow up surveys can be distributed through automated invites



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Setting up a Survey

- Enable in Main Project Settings
- Create Forms
- Enable Forms as Surveys
- Set Settings
- Invite Participants

Data Collection Instruments		Survey options:		Add new instrument:		
		<input checked="" type="checkbox"/> Survey Queue		<input type="button" value="+ Create"/> a new instrument from scratch		
		<input type="checkbox"/> Survey Notifications		<input type="button" value="Download"/> a new instrument from the REDCap Shared Library		
Instrument name	Fields	View PDF	Enabled as survey	Instrument actions		Survey-related options
Demographics	35		<input type="button" value="Enable"/>	<input type="button" value="Rename"/>	<input type="button" value="Delete"/>	
Baseline Data	18		<input checked="" type="button" value="Enable"/>	<input type="button" value="Rename"/>	<input type="button" value="Delete"/>	<input checked="" type="button" value="Survey settings"/> <input checked="" type="button" value="Automated Invitations"/>
Month 1 Data	19		<input checked="" type="button" value="Enable"/>	<input type="button" value="Rename"/>	<input type="button" value="Delete"/>	<input checked="" type="button" value="Survey settings"/> <input type="button" value="+ Automated Invitations"/>
Month 2 Data	19		<input type="button" value="Enable"/>	<input type="button" value="Rename"/>	<input type="button" value="Delete"/>	
Month 3 Data	27		<input type="button" value="Enable"/>	<input type="button" value="Rename"/>	<input type="button" value="Delete"/>	
Field Type Demo	20		<input type="button" value="Enable"/>	<input type="button" value="Rename"/>	<input type="button" value="Delete"/>	



Setting up a Survey

Survey Settings

- **Survey Status**
- **Survey Title**
- **Question Numbers**
- **Split up in Sections**
- **Logo (Optional)**
- **Introduction/Instructions**
- **Survey Expiration**
- **Save and Return Option**
- **End of Survey**
 - **Text**
 - **Link Directly to Webpage**
- **“Delete” a Survey**



Disabling a Survey

- **NOT in the Online Designer**

Add new instrument: [Create](#) a new instrument from scratch
[Download](#) a new instrument from the REDCap Shared Library

Instrument name	Fields	View PDF	Enabled as survey	Instrument actions	Survey-related options
Demographics	37		Enable	Rename Delete	
Month 2 Data	19		Enable	Rename Delete	
Baseline Data	18			Rename Delete	Survey settings Notifications + Automated Invitations
Month 1 Data	19		Enable	Rename Delete	
Month 3 Data	27		Enable	Rename Delete	
Completion Data	6		Enable	Rename Delete	

- **But in the Survey Settings**
- **Misleading Button “Delete Survey”**

[Save Changes](#)

[-- Cancel--](#)

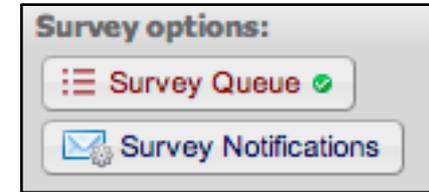
[Delete Survey](#)

Delete Survey: Please note that deleting the survey will NOT delete any responses collected using the survey. Also, deleting the survey will NOT delete the data collection instrument, but instead the instrument will revert back to how it was before it was enabled as a survey, in which data can only be collected by authenticated users on the data entry form.



Notifications

- Track Survey Completion Rates
- Can Select Multiple Emails

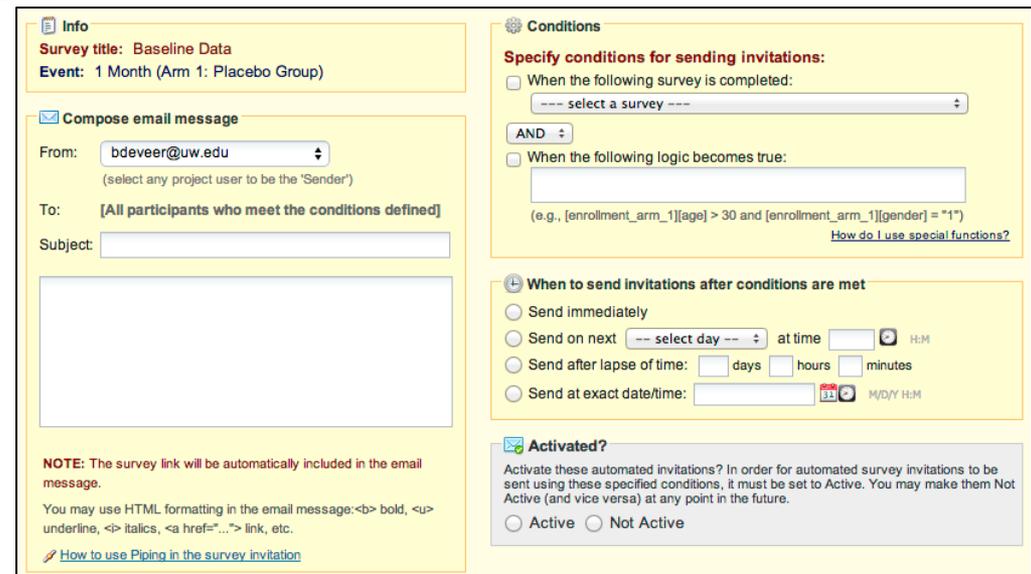


Baseline Data	Recipient email address	Notifications Enabled
bdeveer@washington.edu (Bas de Veer)	bdeveer@uw.edu (Primary)	<input checked="" type="checkbox"/>
cfong@washington.edu (Christine Fong)	-- not selected --	<input type="checkbox"/>
sallylee@washington.edu (Sally Lee)	-- not selected --	<input type="checkbox"/>
tblack@washington.edu (Tony Black)	-- not selected --	<input type="checkbox"/>



Automated Invites

- Send Automated Invitations to Participants
- Custom Message (per Survey)
- Define Sender Address
- Define Trigger Conditions
 - Survey Completion
 - Branching Logic
- Time Delay
- Active/Not Active



- Used to Send Survey Invitations
- Only 1 Field Allowed per Project
- Has to Be a Text Variable With the “Email” Validation
- Found in the Project Setup Page
- In the Module “Optional Modules and Customizations”

Designate an email field to use for invitations to survey participants x

You can capture email addresses for sending invitations to your survey participants by designating a field in your project. If a field is designated for that purpose, then any records in your project that have an email address captured for that particular field will have that email address show up as the participant's email address in the Participant List (unless an email address has already been entered for that participant in the Participant List directly).

Using the designated email address field can be especially valuable when your first data collection instrument is not enabled as a survey while one or more other instruments have been enabled as surveys. Since email addresses can only be entered into the Participant List directly for the first data collection instrument, the designated email field provides another opportunity to capture the email address of survey participants.

Please be aware that designating an email field means that survey responses can NEVER BE ANONYMOUS because of the fact that the participant's email address can be viewed on a data entry form, which means it is easy to identify the record/response to which the email address belongs.

NOTE: If the participant's email address has already been captured directly in the Participant List, then that email address will supersede the value of the email field here when survey invitations are sent to the participant.

Choose an email field to use for invitations to survey participants:

email ("E-mail")



How to Add an Additional Email

- Go to the “My Projects” Page
- Select “My Profile”
- Add a Secondary or Tertiary Email Address
- Press Save
- Valid for all your projects

bdeveer@u.washington.edu | [My Profile](#) | [Log out](#)

Basic Information

First name:

Last name:

Primary email:

Additional Options

While your primary email address is used for receiving emails and notifications from REDCap, your secondary and tertiary email addresses can only be used when sending out emails from REDCap (e.g. sending survey invitations), in which they appear as the 'From' address in the email.

Secondary email: [Remove](#)

Tertiary email:



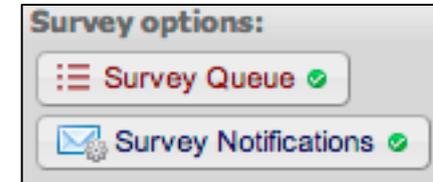
Survey Queue's

- **Daisy-Chain your surveys**
- **Shorten Branching Logic**
- **Save & Return Option through Survey Queue Link**
- **Auto-Start Feature**
- **Define Paths based on Participant Input**
 - Male vs Female surveys
 - Follow Up Questions
- **Split Up Forms for Greater Flexibility**
 - Complex Studies
 - Longitudinal Studies



Survey Queue

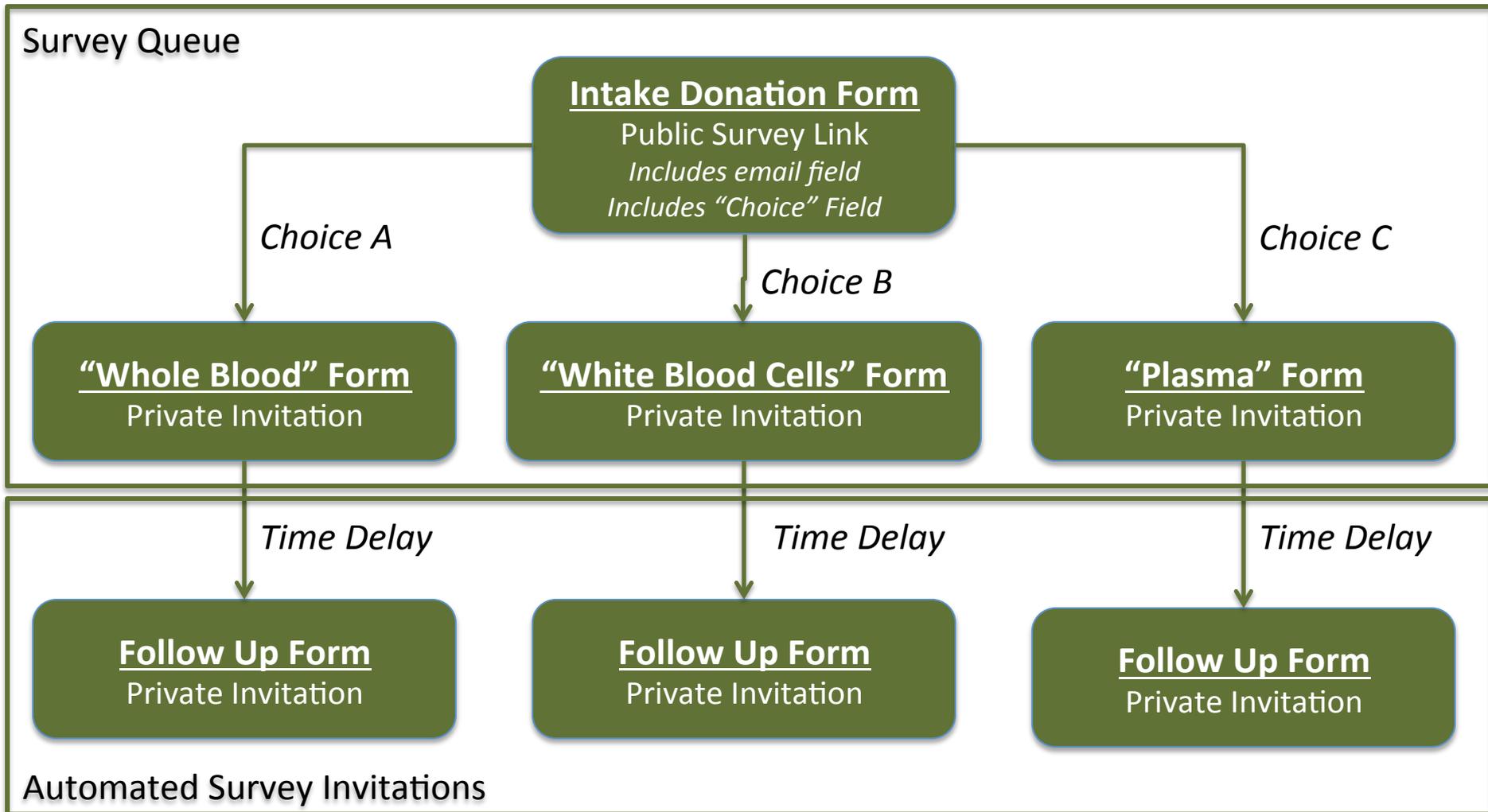
- Found in the Online Designer
- Populated by Forms & Events
- No Email Required



1 Month (Arm 1: Placebo Group)			
 Activated <input type="button" value="Deactivate"/>	"Baseline Data" - 1 Month (Arm 1: Placebo Group)	<input checked="" type="checkbox"/> When the following survey is completed: "Baseline Data" - Intake (Arm 1: Placebo Group) <input type="text"/> AND <input type="text"/> <input type="checkbox"/> When the following logic becomes true: How to use this <input type="text"/> (e.g., [enrollment_arm_1][age] > 30 and [enrollment_arm_1][gender] = "1")	<input checked="" type="checkbox"/>
 Not activated <input type="button" value="Activate"/>	"Month 1 Data" - 1 Month (Arm 1: Placebo Group)	<input type="checkbox"/> When the following survey is completed: --- select a survey --- <input type="text"/> AND <input type="text"/> <input type="checkbox"/> When the following logic becomes true: How to use this <input type="text"/> (e.g., [enrollment_arm_1][age] > 30 and [enrollment_arm_1][gender] = "1")	<input type="checkbox"/>
2 Months (Arm 1: Placebo Group)			
 Activated	"Baseline Data" - 2 Months (Arm 1: Placebo Group)	<input type="checkbox"/> When the following survey is completed: --- select a survey --- <input type="text"/> AND <input type="text"/> <input type="checkbox"/> When the following logic becomes true: How to use this <input type="text"/>	<input checked="" type="checkbox"/>



Fire & Forget Example



Surveys in Long. Studies

- Automated Invitations
 - Per Arm
 - Per Form
- Dynamically Populated
- Disabling a Survey impacts entire project
- Survey Queue's need to be set up for each arm

Data Collection Instruments

Survey options:
Survey Queue
Survey Notifications

Add new instrument:
Create a new instrument from scratch
Download a new instrument from the REDCap Shared Library

Instrument name	Fields	View PDF	Enabled as survey	Instrument actions	Survey-related options
Demographics	35		Enable	Rename Delete	
Baseline Data	18		<input checked="" type="checkbox"/>	Rename Delete	Survey settings Automated Invitations
Month 1 Data	19		<input checked="" type="checkbox"/>	Rename	
Month 2 Data	19		Enable	Rename	
Month 3 Data	27		Enable	Rename	
Field Type Demo	20		Enable	Rename	

Automated Invitations

Choose an event below for which to set up or modify automated survey invitations.

Modify Intake (Arm 1: Placebo Group)



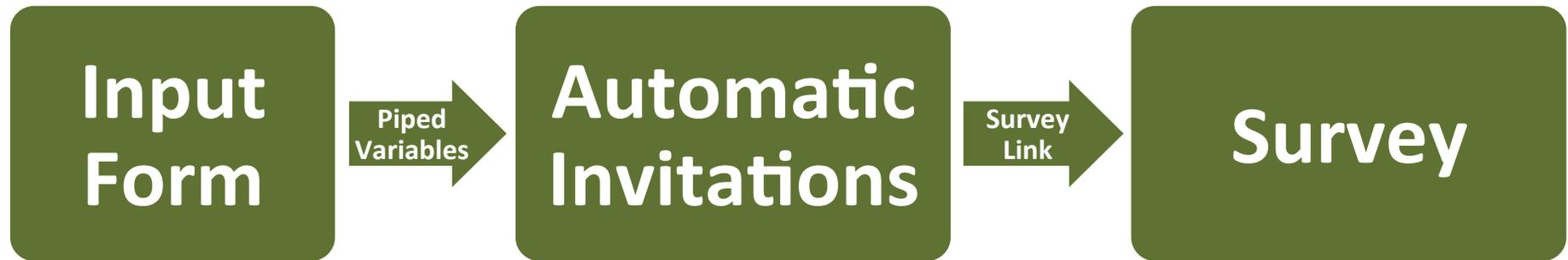
- Play around with a practice project
- Actions that can cause data loss:
 - Deleting Events
 - Deleting Arms
 - Decoupling Forms from Events
- Other Pitfalls:
 - Changing the variable name of the designated email field
 - Reverting a survey
 - Messing with “Dependency Variables”
 - Automated Surveys
 - `[var1] = '1'` or `[var1(1)] = '1'`



- **Display Entered Variables**
 - **Field Labels**
 - **Survey Invitations**
 - **Survey Thank-You Message**
- **Piping Syntax**
 - **Original Variable Name “first_name”**
 - **[first_name]**
- **Example**
 - **First Name Value = “John”**
 - **Syntax in Thank-You Message = “Thanks, [first_name]!”**
 - **Becomes = “Thanks, John!”**



- Pipe Variables into Survey Invitations
- Higher Degree of Customization than Normal Invitations
- 2 Form Method plus Automatic Invitations
 - Input Form
 - Survey Form



Data Integrity



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- **Cross Over from CTMS* Software**
- **Manage the quality of your data**
- **3 Options:**
 - **None**
 - **Field Comment Log**
 - **Comment Ability for Any Field in Any Record**
 - **Linked to the User**
 - **Not Supported in Survey Mode**
 - **Exportable**
 - **Data Resolution Workflow**
 - **Open, View & Close Issues**
 - **Issue Overview (List & Graphical)**
- **Compatible with Data Quality Rules**



Field Comment Log

- Text Balloon Symbol Next to Data Entry Fields
- Extensive Logging
- Works with History Widget (H Symbol)

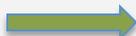
Field Comment Log

This pop-up displays all the field comments for the record and field specified below. Users with access to data entry forms may leave one or more comments on any field on a data collection instrument, after which the balloon icon will stay lit up to signify that comments exist for that field for this record. All field comments for all records/fields can also be viewed, keyword searched, and filtered on the [Field Comment Log](#) page in this project.

Study ID: 1
Event: Intake (Arm 1: Drug A)
Field: first_name ("First Name ")

Date/Time	User	Comments
06/10/2013 9:29pm	bdeveer@washington.edu	

Comment Cancel

Last Name			<input type="text" value="Doe"/>
First Name			<input type="text" value="John"/>



Overview & Export

- Field Comment Logs are Found in the Application List
- Exportable as a CSV File
- Filters
- Direct Links to Each Comment



Field Comment Log Filters: All records for All events Export entire log

Results returned: 1

All fields

All users

All data access groups

Keyword search [Search tips](#)

[Reset](#)

Click button to view comment log	Record	Field	Comments
 1 comment	1 (Doe, John) Intake (Arm 1: Drug A)	first_name (First Name)	bdeveer@washington.edu (06/10/2013 9:32pm): "test"



Setup Data Resolution Workflow

- Found in the Project Setup Page
- In the Module “Optional Modules and Customizations”
- Located in the “Additional Customizations Button”
- Select Data Resolution Workflow and Press “Save”
- Extensive Help Text and Video Links Available
- Go to User Rights to Hook Up Users with the Correct Rights

Additional customizations

 **Enable the Field Comment Log or Data Resolution Workflow (Data Queries)?**
For this project, you may enable either the Field Comment Log or Data Resolution Workflow (also known as the Data Queries module). The Field Comment Log (enabled by default) allows users to leave comments for any given field on a data entry form by clicking the balloon icon next to the field. All comments can also be viewed, searched, and downloaded on the Field Comment Log page. Alternatively, if the Data Resolution Workflow is enabled, users will be allowed to open a workflow for documenting the process of resolving issues with data in the project (i.e. opening, responding to, and closing data queries). [View more details](#)

Enable:

 Data Resolution Workflow No Access
[What is Data Resolution Workflow?](#) View only
 Respond only to opened queries
 Open, close, and respond to queries

User Rights



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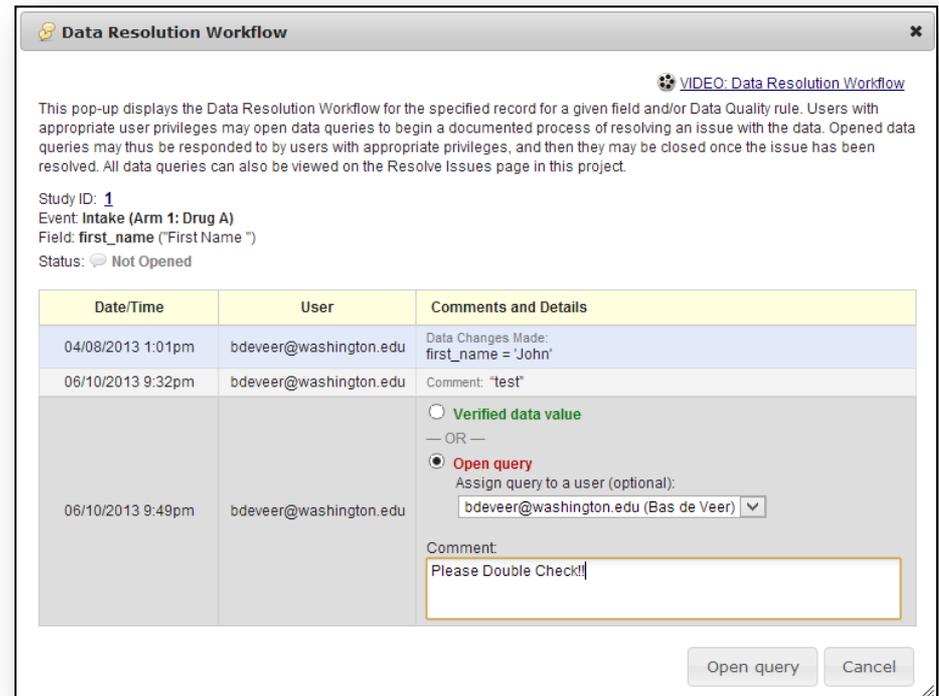
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Possible Actions

- Opening Issues
- Viewing Issues
- Verifying Data
- Responding to Issues
- Commenting on Issues
- Closing Issues



Data Resolution Workflow

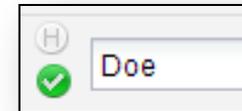
[VIDEO: Data Resolution Workflow](#)

This pop-up displays the Data Resolution Workflow for the specified record for a given field and/or Data Quality rule. Users with appropriate user privileges may open data queries to begin a documented process of resolving an issue with the data. Opened data queries may thus be responded to by users with appropriate privileges, and then they may be closed once the issue has been resolved. All data queries can also be viewed on the Resolve Issues page in this project.

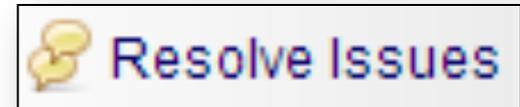
Study ID: **1**
Event: **Intake (Arm 1: Drug A)**
Field: **first_name ("First Name ")**
Status: **Not Opened**

Date/Time	User	Comments and Details
04/08/2013 1:01pm	bdeveer@washington.edu	Data Changes Made: first_name = 'John'
06/10/2013 9:32pm	bdeveer@washington.edu	Comment: "test"
06/10/2013 9:49pm	bdeveer@washington.edu	<input type="radio"/> Verified data value — OR — <input checked="" type="radio"/> Open query Assign query to a user (optional): bdeveer@washington.edu (Bas de Veer) ▼ Comment: Please Double Check!

Open query Cancel



- Data Resolution Overview Found in the Application List
- Resolve Issues Tab
- Resolution Metrics Tab



Data Resolution Dashboard Filters:

Click button to view data query	Record (Sorted by DAG)	Data Quality rule and/or Field	User Assigned	Days Open	First Update	Last Update
1 comment	<u>1</u> (Doe, John) Intake (Arm 1: Drug A)	Field: middle_name1 (Middle name)	bdeveer@washin	0	bdeveer@washington.edu (06/10/2013 9:52pm): "test"	[same as first update]
3 comments	<u>1</u> (Doe, John) Intake (Arm 1: Drug A)	Field: first_name (First Name)	-	0	bdeveer@washington.edu (06/10/2013 9:32pm): "test"	bdeveer@washington.edu (06/10/2013 9:53pm): "corrected"



- Data Quality Module Found in the Application List
- Quickly identify Issues in your Project
- Pre-baked Rules
- Custom Rules
 - Using Branching Logic Syntax
 - Real-time Execution



Example

Find all records where [Gender] = Male and [Pregnant] = True

Syntax: **[gender(1)]='1'** and **[pregnant]='1'**



Learn How To Use REDCap

INTRODUCTION TO REDCAP

- **WHEN:** (once a month, days/times to be determined)
- **WHERE:** South Lake Union
- See: <https://www.iths.org/redcap-class-schedule>

ADVANCED CLASSES

- See: <https://www.iths.org/redcap-class-schedule>

ONLINE VIDEOS & HELP

- REDCap Training Resources
- FAQ
- Supplemental Documentation

ONGOING HELP

- **EMAIL:** iths_redcap@uw.edu
(REDCap community email list)
- **EMAIL:** iths_redcap_admin@uw.edu
(REDCap administrators; last resort for help)



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- **Data Dictionary - Importing and Exporting Data**
- **User Rights – Randomization – Best Practices**
- **Advanced Longitudinal Studies & Surveys**

Schedule and Locations will be on the ITHS website & will be announced in email to users.

<https://www.iths.org/redcap-class-schedule>



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