



Flight Tracker Consortium Meeting

January 8, 2025

www.edgeforscholars.org

X@EdgeForScholars

https://redcap.link/flight_tracker



Meeting Agenda



What's New?

Transitioning to a New Developer
Mentee-Mentor Agreements v2.0
National Mentoring Month!

Current Version:
v6.19.0

Deep Dive: REDCap Logic with Flight Tracker

What's Next?

Feedback: Education Module
Doing More with MeSH Terms
Next Iteration of Find a Collaborator
My Bibliography API Letter



What's New?

New Developer



- Andrew Johnson is our new Flight Tracker developer; he's ramping up his involvement over the next 6 months
- I've moved into an organizational & facilitator role
- What to expect:
 - **Short term:** A slower release cadence as Andrew learns
 - **Long term:** More creative ideas to further advance the career development of researchers
 - More activity around data-oriented tasks instead of just code



Mentee-Mentor Agreements v2.0



- Mentoring plays a huge role in scholar outcomes, so we want to provide positive support for good mentoring practices
→ Mentee-Mentor Agreements
- In the next release, we're revising the agreements to allow the program manager and/or each mentor to ask **up to four custom questions & omit questions/sections**



National Mentoring Month!



- January is National Mentoring Month! Join with us as we celebrate our mentors
- **January 7:** I Am a Mentor Day
- **January 14:** Thank Your Mentor Day
- **January 17:** International Mentoring Day
- **January 20:** Dr. Martin Luther King, Jr., Day of Service
- **January 27:** Thank Your Mentee Day



www.edgeforscholars.org; @EdgeForScholars
www.mentoring.org/campaigns/national-mentoring-month



Deep Dive

REDCap Logic with Flight Tracker

Preface



- This is a code-y topic
- It's 100% not necessary for general Flight Tracker use
- If code or math intimidates you, you're welcome to zone out
- It's meant as an advanced help for those looking to do custom work



Overview



- What is REDCap logic?
 - “Normal” variables
 - Smart variables
 - Special functions
- How can I use it?
 - Data piping
 - Calculated fields
 - Branching logic
 - Advanced filtering on REDCap reports
- Flight Tracker tips



REDCap Logic



- **Definition:** A basic markup computer language that enables you to change REDCap’s behavior based on your data
- Used in the “REDCap side of the world,” not in custom Flight Tracker pages
- Helpful for generating customized results using REDCap
- Applies to non-Flight Tracker REDCap projects!



“Normal” Variables



- Refer to a variable in brackets: `[variable_name]`
- Use the “field name,” not field label
- To get coded variable name, go to REDCap’s Online Designer → select instrument → get field name in small blue text

A screenshot of the REDCap Online Designer interface. It shows two field configuration panels. The top panel is for a field labeled "First Name" with a field name of "identifier_first_name" and a format of "GivenName (PreferredName)". The bottom panel is for a field labeled "Middle Name/Initial" with a field name of "identifier_middle". Both field names are highlighted in blue text, and red arrows point to them from the right. The interface includes icons for editing, deleting, and adding fields, as well as buttons for "Add Field", "Add Matrix of Fields", and "Import from Field Bank".

“Normal” Variables: Advanced



- If your project is Longitudinal and uses events:
 - `[unique_event_name][variable_name]`
 - Unique event names can be found via the Project Setup page
 - Flight Tracker does **NOT** use events, so this does **NOT** apply



- For repeating instruments, like some Flight Tracker forms:
 - `[variable_name][instance_number]`
 - *E.g.*, `[citation_pmid][5]` for instance 5 of the citation form

“Normal” Variables: Comparisons




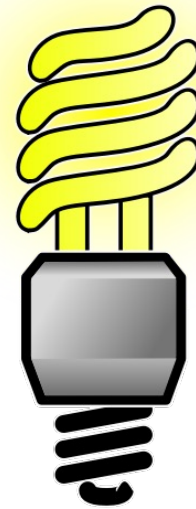
- Variables can be compared to each other via Boolean logic to turn into a true-or-false statement:
- Parentheses () can nest logic, just like algebra

REDCap Logic	Description
[var1] = [var2]	Equals
[var1] <> [var2]	Not equals
[var1] > [var2]	Greater than
[var1] >= [var2]	Greater than or equal to
[var1] < [var2]	Less than
[var1] <= [var2]	Less than or equal to
[cond1] and [cond2]	Both conditions must be true
[cond1] or [cond2]	One condition must be true

Smart Variables



- Looks into the data's **context** to determine which value to use
- This green button will tell you all there is to know:  Available on Project Setup page in REDCap
- Tons of options, including:
 - User information
 - Record-specific information
 - Instrument/Form information
 - Survey descriptive data
 - Events
 - Repeating instruments/events
 - Randomization



Smart Variables: Examples




- **[citation_title][current-instance]** – the current publication’s title on the same form
- **[citation_pmid][next-instance]** – the next publication’s PMID
- **[survey-url:initial_survey]** – a URL to send to a scholar to fill out the Initial Survey
- **[user-name]** – the current user’s REDCap username
- **[user-fullname]** – the current user’s first and last name



Special Functions



- Functions [think algebra] that calculate a value from data
- More information available by a blue button:  Available on Project Setup page in REDCap
- Including:
 - If/then/else
 - Date functions [year value, month value, day value]
 - Date difference [years, months, days, hours, seconds]
 - Is blank?
 - Numerical values [rounding, square roots, exponents, ...]
 - Text functions [contains?, replace, concatenate]

$f(x)$

Special Functions: Like Excel



- Microsoft Excel has functions, like SUM or CONCAT that manipulate data based on the data values themselves
- REDCap's Special Functions act similarly

<code>=SUM(B15:B16)</code>



Special Functions: Examples



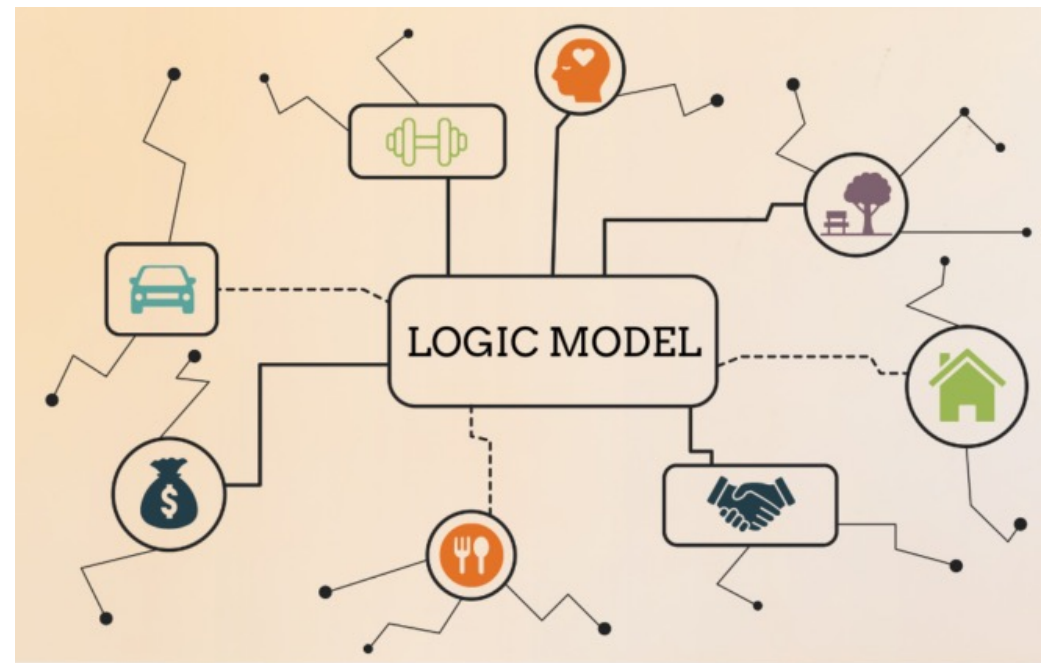
- `datediff([date1], [date2], 'y')` – the number of years between two dates
- `min([num1], [num2], [num3])` – the minimum number among three values
- `starts_with([identifier_first_name], 'Su')` – tells true/false whether a name starts with 'Su', like 'Sue' or 'Susan' but not 'Bill'
- `concat(year([date1]), '-', month([date2]), '-', day([date2]))` – forms a new date with date1's year and the month/day from date2 – yes, you can **nest** functions within functions



How Can I Use REDCap Logic?



- Data piping
- Calculated fields
- Conditional logic:
 - Branching logic
 - Survey queues
 - Advanced filtering on REDCap reports




Data Piping



- Puts data from other fields into field labels
 - Enter the variable name, e.g., `[identifier_first_name]`
 - When blank, a field shows up as _____
 - When data is available, the value shows up instead

Setup:

A screenshot of the REDCap form builder interface. The top section shows a question: "What is your favorite ice cream?" with radio button options for "Chocolate", "Vanilla", and "Strawberry". Below this are buttons for "Add Field" and "Add Matrix of Fields". The bottom section shows a question: "How much do you love [ice_cream] ice cream?". The label "[ice_cream]" is highlighted with a red arrow. To the right of the question is a slider control with labels "Hate it", "Indifferent", and "I love [ice_cream]!". The label "I love [ice_cream]!" is also highlighted with a red arrow. A "reset" button is visible in the bottom right corner of the slider section.

- More information available by a purple button:  Piping
Available on Project Setup page in REDCap


Data Piping



- Puts data from other fields into field labels
 - Enter the variable name, e.g., `[identifier_first_name]`
 - When blank, a field shows up as _____
 - When data is available, the value shows up instead

Before:

A screenshot of a survey form. The top question is "What is your favorite ice cream?" with three radio button options: "Chocolate", "Vanilla", and "Strawberry". A "reset" button is in the bottom right. The bottom question is "How much do you love _____ ice cream?". Below the question is a horizontal slider with labels "Hate it", "Indifferent", and "I love _____!". A blue slider knob is positioned between "Indifferent" and "I love _____!". Below the slider is the text "Click bar above and then drag to set response".

- More information available by a purple button:  Piping
Available on Project Setup page in REDCap


Data Piping



- Puts data from other fields into field labels
 - Enter the variable name, e.g., `[identifier_first_name]`
 - When blank, a field shows up as _____
 - When data is available, the value shows up instead

After:

A screenshot of a survey form. The top section has a light green background and contains the question 'What is your favorite ice cream?' with three radio button options: 'Chocolate' (selected), 'Vanilla', and 'Strawberry'. A 'reset' button is in the bottom right of this section. The bottom section has a light gray background and contains the question 'How much do you love Chocolate ice cream?' with a slider ranging from 'Hate it' to 'I love Chocolate!'. A blue slider knob is positioned at the 'Indifferent' mark. Below the slider is the instruction 'Click bar above and then drag to set response'.

- More information available by a purple button:  Piping
Available on Project Setup page in REDCap

Calculated Fields



- Go to Online Designer → open an instrument → click on the pencil for a field or add a new field
 - Under Field Type, select Calculated Field

A screenshot of the "Add New Field" form in the Flight Tracker for Scholars interface. The form is titled "Add New Field" and contains several sections. A red arrow points to the "Calculation Equation" text area, with the word "Click!" written in red below it. The form includes a "Field Type" dropdown menu set to "Calculated Field", a "Field Label" text area, a "Variable Name" text area, a "Required?" radio button set to "No", an "Identifier?" radio button set to "No", a "Custom Alignment" dropdown menu set to "Right / Vertical (RV)", and a "Field Note" text area. At the bottom of the form, there are "Save" and "Cancel" buttons. The form also includes a "Codebook" button and a "Clear calculation" link.

Calculated Fields



Logic Editor

Use the text box below to compose your logic, calculation, action tags, etc. If you need more space, click the Fullscreen Mode button to enlarge the text box. When you are finished, click the 'Update' button to minimize the Editor window. Learn how to use [Smart Variables](#) [Special Functions](#) [Action Tags](#) or open the [Codebook](#)

🔍 TIP: Your logic and calculations may contain **comments**, which are not evaluated but only serve as annotations to help document or explain what the calc/logic is doing. Comments must be on their own lines and start with // (double forward slash) or # (hash sign), optionally preceded by whitespace characters (spaces, tabs). You may not append a comment to a line that is part of the logic or calc expression. [View example](#)

Fullscreen Mode

Update & Close Editor

Cancel

A special editor will appear to help you figure out the equation

Special functions are very helpful with calculated fields

Calculated Fields



Logic Editor [Close]

Use the text box below to compose your logic, calculation, action tags, etc. If you need more space, click the Fullscreen Mode button to enlarge the text box. When you are finished, click the 'Update' button to minimize the Editor window. Learn how to use [\[#\] Smart Variables](#) [√ Special Functions](#) [@ Action Tags](#) or open the [Codebook](#)

```
length([identifier_first_name])
```

✓ Valid (The determination of validity may not be 100% accurate in all contexts.)

🔍 TIP: Your logic and calculations may contain **comments**, which are not evaluated but only serve as annotations to help document or explain what the calc/logic is doing. Comments must be on their own lines and start with // (double forward slash) or # (hash sign), optionally preceded by whitespace characters (spaces, tabs). You may not append a comment to a line that is part of the logic or calc expression. [View example](#)

The editor will tell you when your logic syntax is valid & readable by the computer



Calculated Fields



Test with a record or two to see real values



Add New Field ✕

You may add a new project field to this data collection instrument by completing the fields below and clicking the Save button at the bottom. When you add a new field, it will be added to the form on this page. For an overview of the different field types available, you may view the [Field Types video](#).

Field Type: Codebook

Field Label Use the Rich Text Editor ?

How long is the first name?

Calculation Equation [How do I format the equation?](#) [Learn how to use Special Functions](#)

length([identifier_first_name])

Test calculation with a record: [Clear calculation](#)

Result: 5

Action Tags / Field Annotation (optional)

Learn about [@ Action Tags](#) or [using Field Annotation](#)

Variable Name (utilized in logic, calcs, and exports)

identifier_first_name_length Enable auto naming of variable based upon its Field Label?

ONLY letters, numbers, and underscores

How to use [Smart Variables](#) [Piping](#) [Field Embedding](#)

Required?* No Yes
* Prompt if field is blank

Identifier? No Yes
Does the field contain Identifying Information (e.g., name, SSN, address)?

Custom Alignment
Align the position of the field on the page

Field Note (optional)
Small reminder text displayed underneath field

Calculated Fields



- After making/editing a calculated field, go to the **Data Quality** part of REDCap
 - Execute **Rule H**: Incorrect values for calculated fields
 - If there are errors [red], click “View”
 - Click “Fix calcs now” button to backfill them all
- In normal functioning, REDCap will update the calculated fields whenever the instrument is saved again

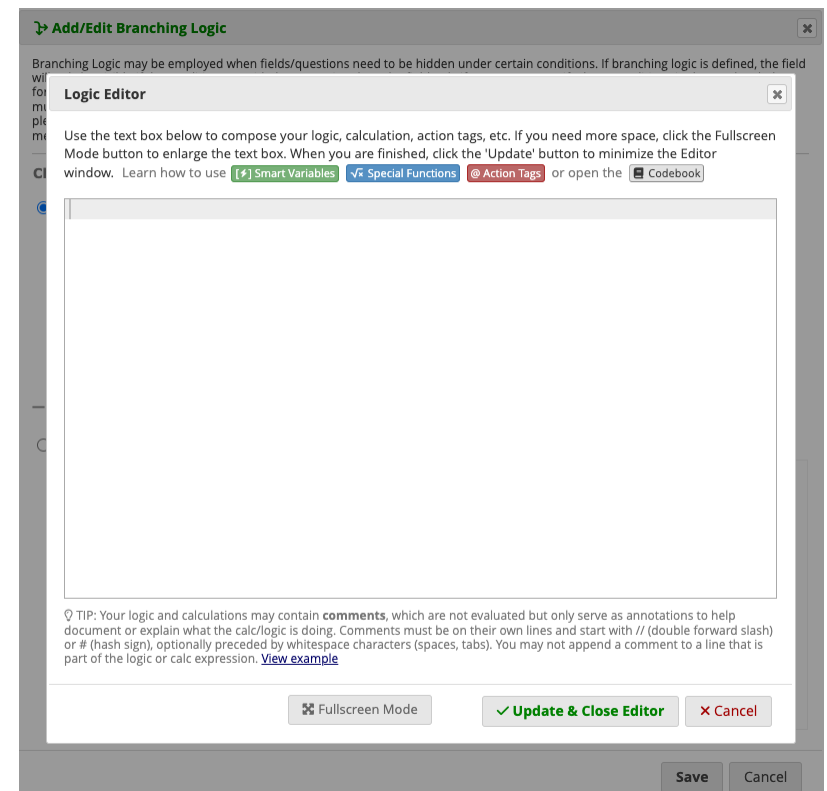
Rule: **Incorrect values for calculated fields**
Discrepancies found: **580**

Record	Discrepant fields with their values	Status	Exclude
1 Khaled Abdel-Kader	"First name length" identifier_first_name_length = [no data] (Calculated value should be "6")	Incorrect value	exclude
2 Ty Abel	"First name length" identifier_first_name_length = [no data] (Calculated value should be "2")	Incorrect value	exclude
3 Robert Abraham	"First name length" identifier_first_name_length = [no data] (Calculated value should be "6")	Incorrect value	exclude

Branching Logic & Survey Queues



- **Branching Logic** = “skip logic” = when to show/skip a field
- The **Survey Queue** also can show entire surveys optionally
- Both use conditional logic to decide when to display
- You enter your logic in the **Logic Editor**, as with calculated fields
- Don’t forget to test with a record or two!



Filtering on REDCap Reports



- REDCap Reports are a powerful tool to run custom reports on your data
- There are other presentations on REDCap Reports
- Step 3 allows you to filter your data based on custom values
 - Usually, the filter is good enough to accomplish my goal

A screenshot of the REDCap report configuration interface, specifically the 'STEP 3' filter configuration section. At the top, there is a checkbox labeled 'Show data for all repeating instruments/events for each record returned' with a question mark icon. Below this is a link: 'How to use filters and AND/OR logic'. The main section is titled 'Filters (optional)' and 'Operator / Value'. It contains two filter rows. The first row, 'Filter 1', has a dropdown menu set to 'citation_include "Include?"', a small 'RBL' icon, an equals sign operator, and a 'Yes' value. A red arrow points to the 'AND' dropdown menu between the two filter rows. The second row, 'Filter 2', has a text input field with the placeholder 'Type variable name or field label', a dropdown menu, and an empty value field. At the bottom left, there is a 'Switch format: Use advanced logic' link. At the bottom right, there is a 'TIP' section with two bullet points: 'Show only repeating instance data: [current-instance] <> ""' and 'Show only the first repeating instance: [current-instance] <> "" and [current-instance] = [first-instance]'.

STEP 3

Show data for all repeating instruments/events for each record returned ? [How to use filters and AND/OR logic](#)

▼ Filters (optional) Operator / Value

Filter 1 citation_include "Include?" [RBL] = Yes

AND

Filter 2 Type variable name or field label

Switch format: [Use advanced logic](#)

TIP: Use [X-instance] Smart Variables to filter repeating data.

- Show only repeating instance data: [current-instance] <> ""
- Show only the first repeating instance: [current-instance] <> "" and [current-instance] = [first-instance]

Filtering on REDCap Reports



- Rarely, I must use complex logic, so I click “Use advanced logic”

STEP 3

Show data for all repeating instruments/events for each record returned ? [How to use filters and AND/OR logic](#)

▼ Filters (optional) **Operator / Value**

Filter 1	citation_include "Include?"	[RB]	=	Yes	×
AND ▼					
Filter 2	Type variable name or field label	[i]			

Switch format: [Use advanced logic](#) ←

TIP: Use [X-instance] Smart Variables to filter repeating data.
• Show only repeating instance data: [current-instance] <> ""
• Show only the first repeating instance: [current-instance] <> "" and [current-instance] = [first-instance]

Filtering on REDCap Reports



- You can convert it to conditional logic, which can turn into the **Logic Editor**, with its Valid/Invalid notice

STEP 3

Show data for all repeating instruments/events for each record returned [?](#)

Filters (optional)

Advanced filter logic: (e.g., [age] > 30 and [sex] = "1") [How do I use special functions?](#)

`[[citation_include] = "1"]`

Valid (The determination of validity may not be 100% accurate in all contexts.)

TIP: Use [X-instance] Smart Variables to filter repeating data.

- Show only repeating instance data: `[current-instance] <> ""`
- Show only the first repeating instance: `[current-instance] <> ""` and `[current-instance] = [first-instance]`

Switch format: [Use simple logic \(choose fields from list\)](#)

Flight Tracker Tips: General



- Most instruments have a “Last Update” field when the data were last updated
- When doing complex things, use calculated fields to store **intermediates** & then pass to conditional logic or other calculated fields
- The concatenate function `concat()` is your friend to string together items



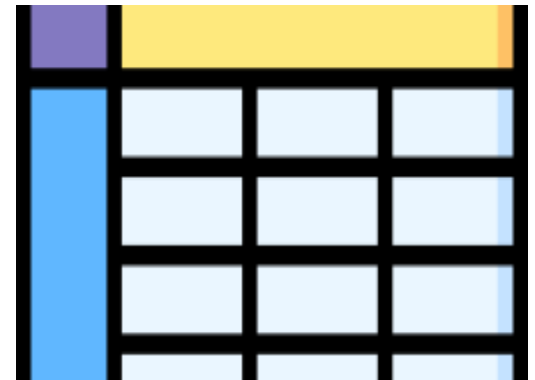
Flight Tracker Tips: Reports



- Filtering for `[citation_include = 1]` will show when a publication has been accepted as “wrangled”
- If you’re getting too many or too few results on REDCap reports, try checking or unchecking “Show data for all repeating instruments/events for each record returned” in Step 3

STEP 3

Show data for all repeating instruments/events for each record returned ?



Recap



- What is REDCap logic?
 - “Normal” variables
 - Smart variables
 - Special functions
- How can I use it?
 - Data piping
 - Calculated fields
 - Branching logic
 - Advanced filtering on REDCap reports
- Flight Tracker tips



Need More Help?



- REDCap is huge, with 7,000+ installations worldwide
- Many REDCap resources are available freely online and can be found via Google
- For most items, REDCap admins can't support Flight Tracker because they don't know grants & publications well
- **However**, for REDCap logic, REDCap admins **can** help you, so reach out to your local team if you have a logic question that you can't figure out





What's Next?

Feedback: Education Module



- A video overview of how to use Flight Tracker
- Two purposes: For advertisement and instruction
- To replace the “newbie” call & perhaps the Getting Started call
- Target: Debut in early summer
- Asynchronous, non-linear modules
- Presented by 3-4 people



Feedback: Education Module



Proposed Topics

1. History & Overview
2. Steps to Get Started
3. REDCap Instruments
4. REDCap Surveys
5. Wrangling Data
6. Scholar Data
7. Publication Graphics
8. Grant Data
9. NIH Training Tables
10. Cohorts
11. REDCap Reports
12. Scholar Portal
13. Tracking Resources
14. Mentee-Mentor Agreements
15. [Data Aggregation Across Projects]

Feedback: Education Module



- Do these topics address your needs?
- Would accompanying written documentation help or be a waster of our time to produce?
- Is there anything else we're missing?



MeSH Terms & Networking



- MeSH Terms = Medical Subject Headings
- Maintained by National Library of Medicine [NLM, from the NCBI, a part of the NIH]
- Organizes medical science into topics
- 31,000+ terms arranged in a tree-like “ontology”
- Evolving & regularly maintained
- Centrally used in PubMed; also in Flight Tracker
- We plan to use MeSH Terms extensively to address problems of **connecting researchers** to each other & to opportunities
- **Much more to come...**



Find a Collaborator



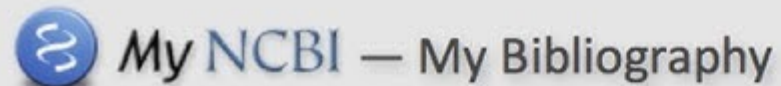
- A newer part of the Scholar Portal that searches all Flight Tracker scholars who've published using certain MeSH terms
- We've been using it a lot to connect scholars with opportunities
- This spring, we want to update a lot:
 - Advance MeSH matching capabilities
 - Expand it to other search possibilities
 - Make it more customizable & dynamic
 - Add it to the admin side of Flight Tracker



My Bibliography API



- In February, we'll discuss on this call a letter to the director of the National Library of Medicine
- We're requesting an API to their My Bibliography app
 - An API allows computer servers to “talk together”
- Scholars often verify their own publications in PubMed to add to their profiles to the NIH
- We want to use these data to ease **Publication Wrangling**



Support Resources



Flight Tracker Community
Ask for an account

Monthly Troubleshooting Call
3rd Wednesday, January 15, at 1pm CT

Monthly “Newbie” Call
January 15, 11am CT

Monthly Getting Started Workshop
January 17, noon CT



Flight Tracker Community



Support Forum

"Better than Email" - Ask me for an Account in the Chat

<https://redcap.vumc.org/flightracker/>

A screenshot of the Flight Tracker Community forum page. The page header includes the Flight Tracker logo, a search bar, a "Create post" button, and a "Spaces" dropdown menu. The main content area displays a list of forum posts under the heading "All Posts in Flight Tracker Community". Each post includes the user's name, the time since the post was made, the topic, and the number of comments and likes. The right sidebar features the Edge for Scholars logo and a list of navigation links.

Welcome to Flight Tracker Community!

All Posts in Flight Tracker Community

User	Time	Topic	Comments	Likes
jessica.chiovitte commented	1 day ago	Getting Started	5	0
new132s		Using FT for New T32 Applications (Jump to latest comment)		
scott.pearson commented	1 week ago	Tracking Scholars	1	0
identical names		Identical name at same institution (Jump to latest comment)		
scott.pearson posted	1 week ago	New Features	0	0
honors and awards survey		Honors & Awards Survey		
kia.huffman commented	1 week ago	Getting Started	1	0
email module setting		email not sent, make sure "Enable module on all projects by default" is NOT checked. (Jump to latest comment)		
scott.pearson commented	1 week ago	Wrangling Grants & Pubs	3	0
publication wrangler		Publication results limited by the "Institutions Searched For" (Jump to latest comment)		

Edge for Scholars

- Home
- Flight Tracker Video Vault
- Mentee-Mentor Agreements
- Getting Started with Flight Tracker
- Next Consortium Meeting & Past Slides
- Newbie Session Agenda
- Edge for Scholars Blog
- Edge for Scholars at Vanderbilt
- X: @EdgeForScholars

Troubleshooting Call



Monthly Troubleshooting Call – optional

Third Wednesday at 1pm Central Time
January 15 **[Next Week!]**

Driven by Your Questions & Problems

All are welcome!

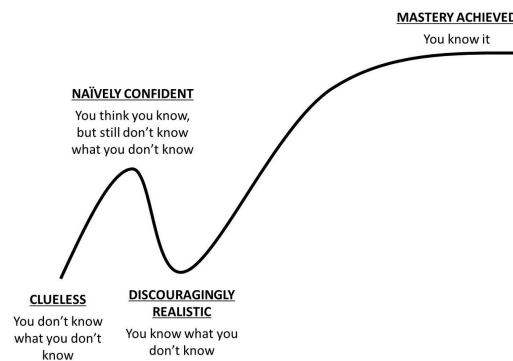
Ask to join our email list in the chat for an invitation...



Newbie Call



Just getting started with Flight Tracker?



There's a definite learning curve.
Move up more quickly by joining
January's "newbie" call.

Wednesday, January 15, at 11am Central Time

(Tuesday, February 18, at 11am Central Time)

Leave your email in the chat to receive an invitation

Getting Started Workshop



After each month's newbie call, we're hosting a separate Getting Started Workshop to get the ball rolling on implementation. Questions will center only around starting out. No advanced questions will be discussed.

Our next call will be on **Friday, January 17,**
at noon CT.

All newbie call participants will be invited.
Let me know if you want an invitation to the next one.



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January 8, 2025

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https://redcap.link/flight_tracker

