Use Logic Checks

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What is a logic check?

Logic checks allow you to flag indicator results that fail common-sense comparisons to numbers, other indicators, or other disaggregations. You can design your own logic checks in DevResults based on your indicators and view any data that violates these rules. Examples of logic checks include:

- Number of trainees should be under 1,000.
- Number of administrators should be greater than or equal to the number of administrators who were trained.
- Doctors + nurses should be less than or equal to the total number of medical professionals.
- Metric tons of corn produced should be less than 40% of total metric tons of crops produced.

When logic checks are calculated, any data that does **not** meet the statement you define in the logic check will throw a warning violation.

Create a logic check

Go to Tools > Logic Checks.



Click on the + New Logic Check button in the lower right corner.

Sample Organization DevResults	Quick	search (Q 🥑 Help
Data Program Info Tools Administrat			
Home 🕨 Tools 🕨 Logic Checks			
↓ f 4 logic checks shown	Search logic checks		٩ .
✓ Reporting periods with warnings	Name 🔶	Warnings	Formula
	Certifications earned should be 10 or less	22	[4.1.1-e] <= 10
2017 Q4	Flag gender disparities in agricultural training	3	[1-c Male] < [1-c Female]*3
2018 Q1	More than 1000 nets should be purchased per location	8	[3.1.1-d] > 1000
2019 Q1	Regions with under 5000 individuals receiving agricultural support	13	[1-c] >= 5000
🗆 2019 Q2	4 logic checks		
2019 Q3			
□ 2019 Q4			
DevResults			

This will open a **Create New Logic Check** pop-up. Give your logic check a name and click the **+ Create Logic Check** button.

Create New Lo	ogic Check	×
Name	Children who slept under a net must be less than all children surveyed]
O Cancel	Create Logic of	Check

In the left and right boxes in the **Definition** section, add the indicators, values, or expressions you'd like to compare. To reference an indicator, put its code in square brackets like [this], e.g. [3.1-N]. When you click outside the editing box, the system will confirm that it recognizes your indicator code or it will give you an error that it does not recognize your indicator code.

Between the two boxes, select the desired operator for your comparison. The options are:

- = (equal to)
- \geq (greater than or equal to)
- >(greater than)
- \leq (less than or equal to)
- < (less than)</p>
- \neq (not equal to)

You have the option to add a note about this logic check in the **Notes** box. Use this as an explanation for other users so that if they have data that violates the logic check, they have an understanding of what needs to be fixed.

Here's a sample:

Example Organization DevResults			Quick search	٩	🕑 Help	
Data Program Info Tools Administration Bookmarks						
Home 🔺 Tools 🔺 Logic Checks 🎽 Children who slept under a net must be less	than all children su	irveyed				
Children who slept under a net	: must b	e less than a	ll children	sur	veyed	🗿 History
Notes						
The number of children under 5 years old who were reported as having slep equal to the total number of children under 5 years old in households surve	t underneath an in yed about insect-tr	sect-treated net (ITN) should be eated nets (ITNs).	less than or			
Definition						
Indicator results that do not meet this criteria will be flagged for review.						
[3.1-N]	< v	[3.1-D]				
Component indicators: 3.1-N # children under 5 years old who slept under an insecticide-treated net (ITN) the previous night		Component indicator 3.1-D # children under 5 insecticide-treated nets (rs: years old in households surve ITN)	eyed about		
	_			_		
DevResults					1 Delete this	logic check

Referencing Disaggregations: If you want the logic check calculation to compare categories for an indicator's disaggregation, use a vertical bar (i.e. pipe operator:) after the code within the bracket. For example, male children would be written as **[3.1-N]Male]**. You can also reference multiple disaggregations if your indicator is cross-disaggregated, such as **[3.1-N]Male]Rural]**.

Algebraic Expressions: In the definition boxes, you can add algebraic expressions. For example, you might create the logic check $[3.1-D] > [3.1-N]^{*4}$. This logic check means that you expect the total number of children surveyed to be more than four times the number of children reported as sleeping under nets.

Multiple Indicators: You can also use multiple indicators in a definition box. So we might have [3.1-D] = [3.1-N] + [3.2], if 3.2 collects the number of children reported as having *not* slept under a net.

Imagine a scenario where you want to check for gender disparities in your survey sample. You want to flag any results where the total male children surveyed is over 100 more than the total female children surveyed. That definition would 1) use an expression with more than one indicator, 2) reference indicator disaggregations, and 3) compare to a fixed value.

Definition			
Indicator results that do not meet this criteria will be fla	igged fo	or revie	ew.
[3.1-D Male] - [3.1-D Female]	≤	~	100
 Component indicators: 3.1-D # children under 5 years old in households surveyed about insecticide-treated nets (ITN) Sex: Male 3.1-D # children under 5 years old in households surveyed about insecticide-treated nets (ITN) Sex: Female 			

View warnings

Once the logic check is created, you can run it immediately using the **Run logic check** button in the lower right. Logic checks are run automatically every 15 minutes, or you can immediately run the logic checks by clicking on the **Run Logic Check** button. The **Warnings** section will show any indicator performance data that does *not* meet the logic check's criteria, listed by project. You can view these by reporting period using the **Reporting Period** dropdown.

Example Organization DevResults				Quick search	Q 🕜 Help						
Data Program Info Tools Administrat	on Bookmarks										
Home 🕑 Tools 🔌 Logic Checks 🔌 Children who slept under a net must be less than all children surveyed											
Children who slept u	nder a net	must b	e less tha	an all children	surveyed	Ö History					
Notes											
The number of children under 5 years old who were reported as having slept underneath an insect-treated net (ITN) should be less than or equal to the total number of children under 5 years old in households surveyed about insect-treated nets (ITNs).											
Definition											
Indicator results that do not meet this criteria will be	flagged for review.										
[3.1-H] <u>5</u> (3.1-D)											
 Component indicators: 3.1-N # children under 5 years old who slept under an insecticide-treated net (ITN) the previous night Component indicators: 3.1-D # children under 5 years old in households surveyed about insecticide-treated nets (ITN) 											
Warnings											
Reporting Period 2021 Q3 V					R	un Logic Check					
Activity	Centre de Santé de Kass	Place		Left 4557	A506						
	22.14 e de Sunte de Nasa										
DevResults					🗊 Delete t	his logic check					

Reporting period pages for each project show that project's indicators and data for that period. Any logic check violations will be tallied in the **Warnings** column. Warnings are given for any indicators involved in the logic check on either side of the operator.

	Example Organization DevResults		Qu	lick searc	:h	۹	? Help		
Data	Program Info Tools Administration Bookmarks								
Home 🕞	Program Info 🔸 Time 🔺 Reporting Periods 🔺 2021 Q3 🎽 Healthy Children Campaign					STATIS	in Pro	gross	v
Hea	lthy Children Campaign					JIATO		,gress	
2021 03	Sebastian Foundation								
Indicat	ors Data Tables Narrative Discussion Forms								
Ξ	Search indicators							Q,	¢-
ê This	eporting period's submission window is closed. Owners and results approvers can edit this data, but other users cannot.								
Code 🛧	Indicator	Data Source	Geographic	Warnings	omments	Previous Results	Current Results	Target	% Target Reached
3.1-D	# children under 5 years old in households surveyed about insecticide-treated nets (ITN)	Direct Entry	Location	1			4,506		0%
3.1-N	# children under 5 years old who slept under an insecticide-treated net (ITN) the previous night	Direct Entry	Location	1			4,557		0%
F-3.1.1-g	% pregnant women who slept under an insecticide-treated net (ITN) the previous night	Formula	Location						0%
F-3.3-e	# health facilities with established capacity to manage acute under-nutrition	Direct Entry	Location		-				0%
F-3.3-f	# children under five who received Vitamin A from USG-supported programs	Direct Entry	Location						0%
F-4.1.2-c	# secondary school students provided with a bus pass for school commutes	Direct Entry	Location						0%
F-4.1.3-a	% USG-funded tertiary education and workforce development programs that include experiential and/or applied learning opportunities	Formula	Prefecture						0%
F-4.2.3-a	# teachers/educators/teaching assistants who successfully completed in-service training or received intensive coaching or mentoring with USG support	Direct Entry	Prefecture						0%
F-4.2.3-b	# teachers/educators/teaching assistants who successfully completed pre-service training with USG support	Direct Entry	Prefecture						0%

When you click on an indicator with a warning, you can see the details of the warning in a pop-up by clicking on the warning icon.

	Example Organization DevResults						irch	۹	? Help	
Data	Program Info	Tools	Administra	ation B	ookmarks					
Home 🕨	Program Info 🕞 T	ime 🕨 Repo	rting Periods	► 2021 Q3	Healthy Child	iren Campaign	STATUS	i 🖸 In	Progress	~
Healthy Children Campaign 2021 Q3 Sebastian Foundation										
31-N # children under 5 years old who slept under an insecticide- treated net (ITN) the previous night										
8 This	reporting period	s submissio	n window is	closed. Ov	wners and resu	ilts approver	s can edit thi	s data, i	but other users	s cannot.
									C Recalculate	logic checks
				Sex						
Locatio	on			Male	Female	Total	Comment	War	nings	
Boké /	Boffa / Centre de Sa	anté de Kassa	mbiya	2,377	2,180	4,557		10.4		
Boké /	Boffa / Katia							[3.1-	w] == [3.1-D]	J
🍈 De	evResults									Done

When do logic checks run?

Logic checks are re-run automatically system-wide every 15 minutes.

You can also click the **Recalculate logic checks** button to manually recalculate them at any time from the logic check definition page:

Example Organization DevResults				Quick search	Q (? Help						
Data Program Info Tools Administrati	on Bookmarks										
Home * Tools * Logic Checks * Children who slept under a net must be less than all children surveyed											
Children who slept u	nder a net	must be	e less tha	an all children	surveyed	Ö History					
Notes											
The number of children under 5 years old who were reported as having slept underneath an insect-treated net (ITN) should be less than or equal to the total number of children under 5 years old in households surveyed about insect-treated nets (ITNs).											
Definition											
Indicator results that do not meet this criteria will be	flagged for review.										
[3.1-0]		<u>≤</u>	[3.1-D]								
 Component indicators: 3.1-N # children under 5 years old who slept under an insecticide-treated net (ITN) the previous night Component indicators: 3.1-D # children under 5 years old in households surveyed about insecticide-treated nets (ITN) 											
Warnings											
Reporting Period 2021 Q3 🗸					Ru	in Logic Check					
Activity		Place		Left	Right						
Healthy Children Campaign	Centre de Santé de Kassa	ambiya		4557	4506						
DevResults					🗊 Delete ti	his logic check					

Or the project's reporting period page:



Or from the data entry page for the indicator:

	Example Organization DevResults			G	uick search	Q	Help				
	Program Info Tools Adminis										
Home 🕞	Program Info 🔺 Time 🎽 Reporting Period	ds ⊨ 2021 Q3	Healthy Childr	en Campaign	🛌 # children ur	STATUS 🖸 I	n Progress	~			
Hea	Healthy Children Campaign										
2021 Q	3 Sebastian Foundation	1	5								
Indicato	rs Data Tables Narrative Dis	cussion For	ms								
3.1-D ;	31-D # children under 5 vears old in households surveyed about										
i	insecticide-treated ne	ts (ITN)									
ê This	reporting period's submission windov	v is closed. Ow	ners and resul	ts approvers	s can edit this da	ta, but other	users cannot.				
							C Recalculate lo	gic checks			
		Sex									
Locatio	n	Male	Female	Total	Comment		2				
Boké / I	Boffa / Centre de Santé de Kassambiya	2,351	2,155	4,506				A			
Boké / I	Boffa / Katia										
Boké / I	Boffa / Mélikhouré										
Boké / I	Boké / Bélénialé										
Boké / G	Gaoual / Kitiara										
Boké / I	Koundara / Idaré										
All De	Devilte										
De 🗍	VRESULTS						✓	Done			

Do logic check warnings prevent submission of indicator data?

Logic checks can be used to flag incorrect data, but they can also be used to flag unexpected or undesirable outcomes that are nonetheless correct. For this reason, logic check warnings do **not** prevent the submission of data. Logic check warnings are intended to assist reviewers in assessing data prior to approval.

How do I resolve a logic check?

When you **view warnings** and see that some data violates a logic check, examine the data to identify whether 1) there is an error with the data or whether 2) the data is correct and the warning indicates the need for a programmatic shift. If there is an error with the data, edit the indicator results to correct the data it or return the data to a partner to correct. Once corrected, the warning remains until the logic checks are recalculated automatically (which happens every 15 min) or **manually, by clicking the Recalculate logic checks button**.

Didn't answer your question? Please email us athelp@devresults.com.

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