

Data Source: From a Formula

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Formula indicators are an excellent way to handle percentages or to view various types of aggregates. If you are interested in a metric such as *Percent of staff trained*, the best way to manage this is to have two indicators: one for *Number of staff trained* and one for *Number of staff*. DevResults can compute the percentage automatically. Computing percentages and certain totals can reduce data entry, reduce human error, provide a more thorough audit trail, and give more appropriate comparisons of percentages between places, time periods, and activities.

This page will walk you through what you need to know to work with formulas:

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- [What operations are supported in formulas?](#)
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- [Do formulas support conditional logic?](#)
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Configuring Formula Indicators

In the example below, we will compute

% of new users who pass certification exam

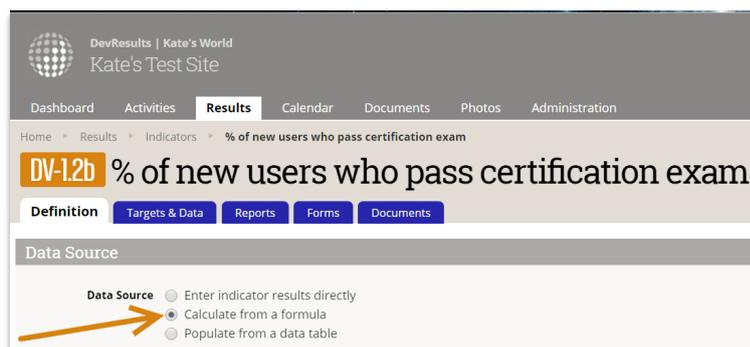
To do so, we will need to divide

of new users certified (e.g. how many passed the certification exam)

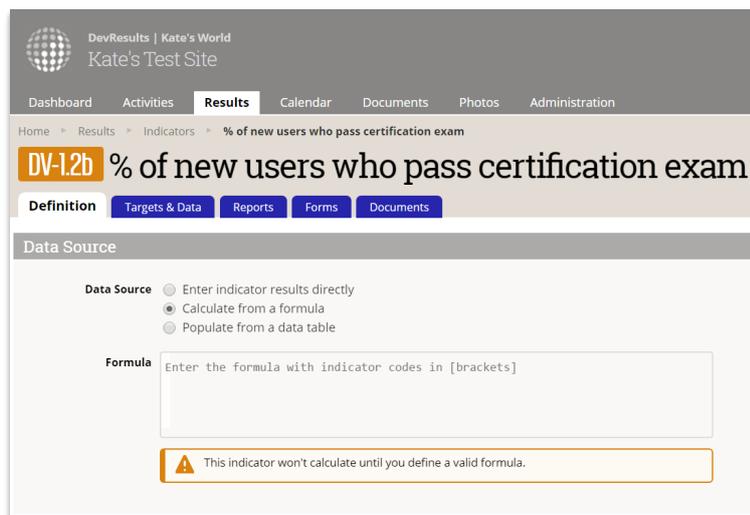
by

of new users administered the certification exam

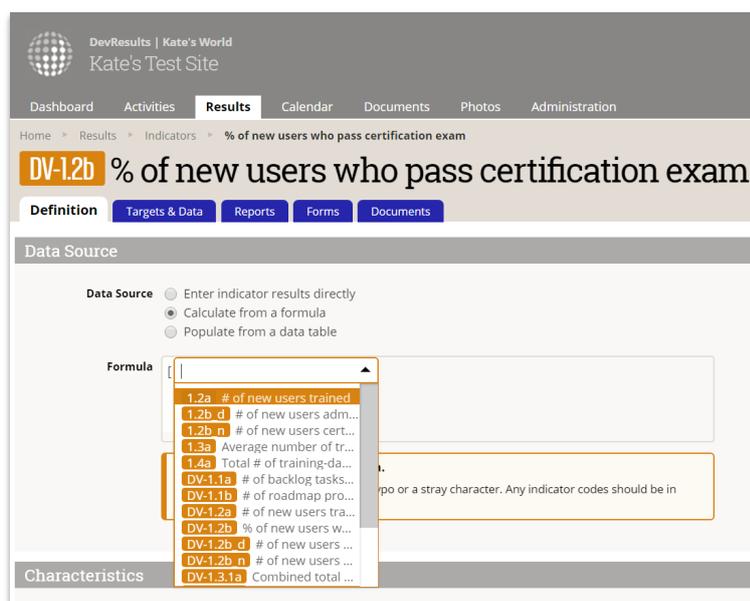
To define your indicator with a formula, click **From a Formula** as your indicator's Data Source.



Once you make this selection, a Formula Editor box will appear for you to write the formula for the indicator.



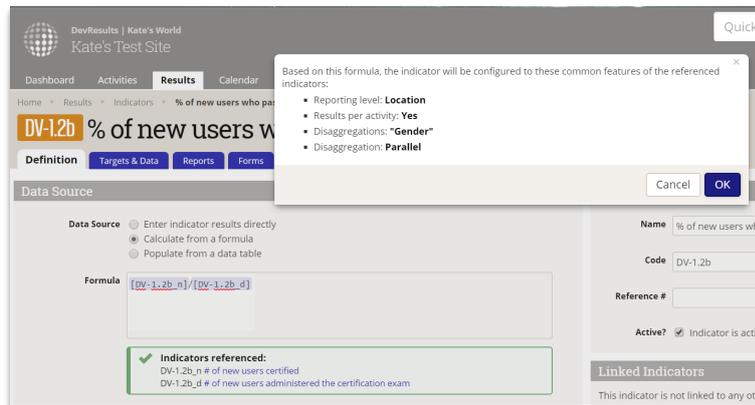
You'll use square brackets like [this] to reference an indicator by its code. You can begin by typing a left square bracket: [and you will get a dropdown of indicators in your site. You can scroll through these or start typing to narrow the list.



You can click or arrow to the indicator you want. Once you've selected the indicator you want, close it with another square bracket. The editor will display confirmation of the indicators you've referenced below, as well as any warnings or problems with the formula.

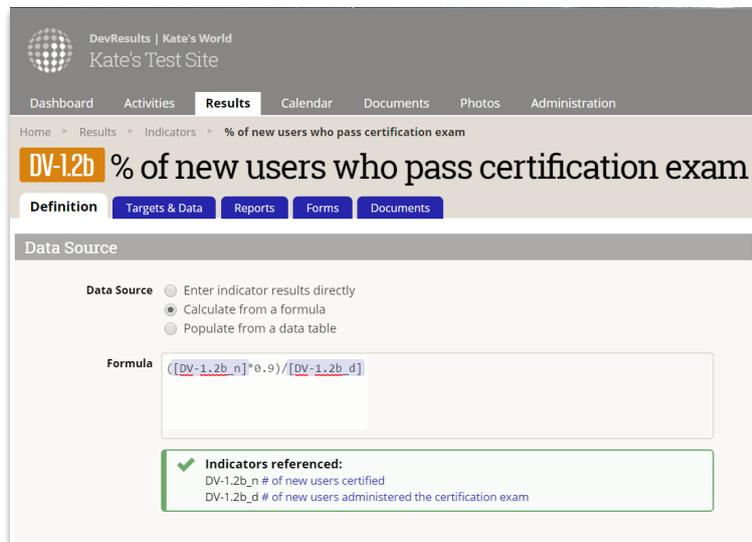
You can reference as many indicators as you need in the formula. Once you've entered your formula, before you navigate to another field, DevResults will check to see what the referenced indicators have in common. For formulas to compute, the indicators must be referencing the same disaggregations, reporting level, and so on. Our Common Features Evaluator will check all your referenced indicators to determine the most granular set of features they have in common.

It will present these common features in a pop-up for you to review. Click **OK** to accept these features.



What operations are supported in formulas?

The formula editor supports all standard mathematical operations (+, -, /, *) and recognizes parentheses. You can also use whole numbers and decimals. For example, if you know that your *# of new users certified* indicator is consistently overcounted by 10%, you can multiply it by 0.9 to counteract this bias:



Can my formula reference specific disaggregation values only?

Absolutely! To reference specific disaggregation values only, after you've selected or typed your indicator code, add a vertical bar or pipe: | (on standard English keyboards, this is grouped on the same key as \). The formula editor will then give you a relevant dropdown depending on the disaggregations assigned to that indicator:

Once you select the disaggregation value you want, the **Indicators referenced** section will update accordingly:

Do formulas support conditional logic?

Yes. Conditional formulas use the **IIF** function. The Formula Editor will recognize inline if statements structured in this format:

```
IIF( , , )
```

To create the expression, you can use:

=	Equal to
>	Greater than
<	Less than

AND	Boolean "and"
OR	Boolean "or"
TRUE	Yes or 1
FALSE	No or 0

In our example, maybe we only care about data where the # of new users certified is greater than 5, and if it's less than 5, to use 0 rather than the actual value. In that case, we would use something like this:

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Kate's Test Site

Dashboard Activities **Results** Calendar Documents Photos Administration

Home > Results > Indicators > % of new users who pass certification exam

DV-1.2b % of new users who pass certification exam

Definition Targets & Data Reports Forms Documents

Data Source

Data Source Enter indicator results directly
 Calculate from a formula
 Populate from a data table

Formula `IIF([DV-1.2b_n]>5, [DV-1.2b_n], 0)/[DV-1.2b_d]`

✓ Indicators referenced:
 DV-1.2b_n # of new users certified
 DV-1.2b_n # of new users certified
 DV-1.2b_d # of new users administered the certification exam

What if the features the indicators have in common are too detailed?

While you cannot make a formula indicator *more* detailed than the common features, you can always make it less granular. So, in our example, both the indicators in the formula have a **Gender** disaggregation and are set at the **Location** Reporting Level. The evaluator identified that, assigned the Gender disaggregation, and set my reporting level to Location. But if I don't want the gender disaggregation and I only want to see this calculated at the country level, I can change that:

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Kate's Test Site

Dashboard Activities **Results** Calendar Documents Photos Administration

Home > Results > Indicators > % of new users who pass certification exam

DV-1.2b % of new users who pass certification exam

Definition Targets & Data Reports Forms Documents

Data Source

Data Source

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Formula

`[DV-1.2b_n] / [DV-1.2b_d]`

Indicators referenced:

- DV-1.2b_n # of new users certified
- DV-1.2b_d # of new users administered the certification exam

Characteristics

Indicator Type

- Sum
- Average
- Yes/No

Number format

- Whole number
- Decimal
- Percentage
- Rate per 100

Default Reporting Cycle Quarterly [Edit reporting cycles](#)

Unit Select... [Edit standard units](#)

Periods

Results are:

- Incremental (since last result)

Targets are:

- Incremental (since last target)
- Cumulative (over the life of the project)

Disaggregation

Disaggregations	Disaggregation	Values	Disable
+ Add a disaggregation...			Master list of disaggregations

Results are cross-disaggregated Results are parallel disaggregated

Note: this setting will be ignored because there are no disaggregations

Reporting Level Results are reported by:

- Location
- Commune
- Canton
- Entity
- Bosnia and Herzegovina

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

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