

# Constraints & Semi Additive Fields

## Overview

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All measures that record a static level (inventory levels, financial account balances, and measures of intensity such as room temperatures) are inherently non-additive across the date dimension and possibly other dimensions. In these cases, the measure may be aggregated usefully across time, for example, by averaging over the number of time periods.

The Constraint option is used for **semi-additive** values so that business users will be prompted if they try to create a report with incompatible values. Use constraints to define how the aggregation is to be applied if the field is semi-additive.

An example of where this function is useful is shown below:

Month	Name	Head Count
June	Fred	1
June	Jane	1
June	Mary	1
July	Fred	1
July	Jane	1
		5
		Sum

Given the above data, to sum the Head Count alone would result in 5 if Month were not included in the report. This would be misleading for a user (since 5 people were never employed at one time). If you put a constraint rule on Month that it is a mandatory field when Head Count is being summed, then this would result in the following data:

Month	Head Count
June	3
July	2
	5
	Sum

As you can see from these results the report is more meaningful and correct. By applying a constraint to the aggregation of headcount the correct usage of the attribute is ensured by the end user in their reports. To access the rules applied to fields the semi-additive option must be selected from the format tab; once it has been selected the **“Constraint”** tab will appear, this is where the user defines the rules.

DefinitionData ConversionFormatAccessUsage

Save

Field Type:Metric  
Converted Data Type:Numeric  
Format:Numeric  
Decimal Places:0  
Prefix:\$  
Suffix:  
Rounding:Round Half Up  
Thousand Separator:☒ Yes ☐ No  
Bracket Negatives:☐ Yes ☒ No  
Additive Type:☒ Additive ☒ Semi-Additive

1. Aggregation not permitted allows the user to indicate which action is not permitted for the metric. If sum or average is selected, the corresponding column will not be available to constrain against.
2. When constrain against fields/categories box is selected a new section is displayed. A column for the sum constraint and the average constraint is displayed next to the fields allowed in the report. The user selects the constraint the want against the field.

Definition	Data Conversion	Format	Access	Constraint	Usage
<p>Aggregation <b>not</b> permitted</p> <p><input type="checkbox"/> Sum</p> <p><input type="checkbox"/> Average</p> <p><input type="checkbox"/> Advanced</p>					
<p>Constrain Against Fields/Categories:</p> <p><input checked="" type="checkbox"/> Yes</p>					
<p><b>Sum Constraint   Avg Constraint</b></p> <p> <input type="checkbox"/> REGION           <input type="text" value="No Constraint"/> <input type="text" value="No Constraint"/> </p> <p> <input type="checkbox"/> ISOCODE           <input type="text" value="No Constraint"/> <input type="text" value="No Constraint"/> </p> <p> <input type="checkbox"/> YEARDATE           <input type="text" value="No Constraint"/> <input type="text" value="No Constraint"/> </p>					

These constraints are checked when creating a report and the metric is being aggregated with sum or average.

The rules that can be applied to a field are: exclude, mandatory, and one of list. The default rule is no constraint; this will result in no constraint being applied to the field.

<b>Exclude</b>	Being selected as the rule will result in the field not being allowed to be used in the report when the chosen aggregation is applied.
<b>Mandatory</b>	Being chosen as the rule will indicate the field must be used in the report when the relevant aggregation is applied.
<b>One of list</b>	Constraint will result in at least one of these fields being present in the report when being aggregated by the relevant field.

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