



## Accumulation

### Introduction

Many scenarios regardless of the audience your dashboard is intended for may require a mass grand total that is gradually calculated – also allowing the user to view the result during any desired interval of that journey. Let's take an example of sales transactions which have been recorded with a sales date and the region of where the transaction took place. The methods below will allow the user to see the total sales for a particular region for all dates up to and including final one. The details outlined throughout this white paper are constructed using QlikView 12.0 SR5.

### Accumulation in Script

Accumulation of a numeric field can be coded in QlikView script using the Peek function – which means the values of the accumulation would be calculated on reload. The below table shows sales data loaded into QlikView – with three columns; Country, Sales (amount) and the Date of date.

Country	Sales	Date
USA	10	05/02/2017
USA	20	21/01/2017
USA	15	22/02/2017
UK	5	04/02/2017
UK	10	16/02/2017
UK	30	01/01/2017
USA	40	16/03/2017
UK	10	20/03/2017
UK	5	10/03/2017

*Figure 1*

As shown above the transactions are not in a consistent order. The below script converts this to a particular order and adds in an accumulation field.



```

LOAD
    Country,
    Date,
    Sales,
    if(Country <> Peek(Country), Sales,
        Peek(Accumulation)+Sales) as Accumulation
Resident Sales
Order by Country desc, Date asc;
DROP Table Sales;

```

The above script firstly loads in the data from the Figure 1 table named Sales – and orders it first by Country (alphabetically Z-A) followed by Date (the earliest first). An accumulation field is then created using a combination of the Peek and If functions. The process is as follows; if the value of the country field in the current row does not equal the value of country in the previous row (Peek), give the value of the sales field in the current row. Peek forces the script to look back at the previous row of data if no second parameter (anticipated row) is specified. If the first condition of this 'If' statement is false, it will look at the second; look back at the previous row of the accumulation field we are creating (Peek) which is a result of the accumulation thus far, and add the sales of the current row. The second condition allows the previous row of the accumulation field to be looked into as the first row of this field will always be calculated by the 'If' statement's first parameter –the country of the first row has no previous value to compare to.

The result of the above is shown:

Country	Date	Sales	Accumulation
USA	21/01/2017	20	20
USA	05/02/2017	10	30
USA	22/02/2017	15	45
USA	16/03/2017	40	85
UK	01/01/2017	30	30
UK	04/02/2017	5	35
UK	16/02/2017	10	45
UK	10/03/2017	5	50
UK	20/03/2017	10	60

Figure 2

## Accumulation in Chart – Full/Steps Back

It is possible to load data as in into your data model and configure the accumulation within chart objects. The built in feature is extremely useful as it allows you to accumulate the values of a field based on the scripting method above as well as having more flexibility - in allowing you to go back a certain number of steps within your accumulation. The below example uses the original data table (Figure 1) loaded into QlikView.



Date	Sales	Accumulation
	145	145
01/01/2017	30	30
21/01/2017	20	50
04/02/2017	5	55
05/02/2017	10	65
16/02/2017	10	75
22/02/2017	15	90
10/03/2017	5	95
16/03/2017	40	135
20/03/2017	10	145

Figure 3

The above example illustrates a third column being added which accumulates the sales for the date dimension. In the expressions tab within the properties of a chart there is an option to accumulate your expression's results (Figure 4).

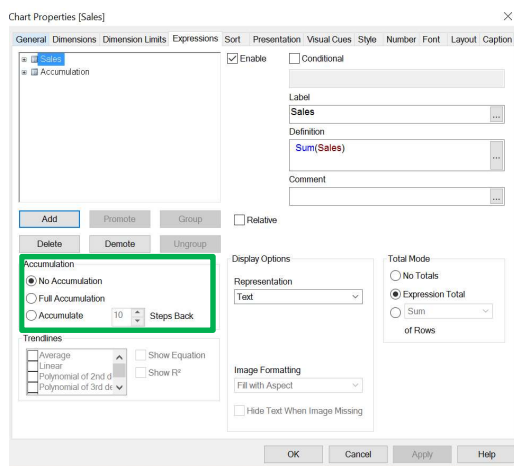


Figure 4

To get the full accumulation (Figure 3) check the 'Full Accumulation' option. You are also able to accumulate a certain number of rows together – i.e. you would like to grab the current row and three previous to it to sum a total. For this the 'Accumulate' option should be checked and the 'Steps Back' set to four (four rows making up the total) – results shown below.

Date	Sales	Accumulation
	145	145
01/01/2017	30	30
21/01/2017	20	50
04/02/2017	5	55
05/02/2017	10	65
16/02/2017	10	45
22/02/2017	15	40
10/03/2017	5	40
16/03/2017	40	70
20/03/2017	10	70

Figure 5



By adding in another dimension, i.e. Country, would not break down the accumulation by each value in the first dimension. Described in the following section is a method to tackle this scenario.

### Accumulation in Chart – RangeSum

Using a combination of the RangeSum(), Above() and RowNo() functions you are able to create an expression which calculates an accumulation of a given field for each value within a dimension. When the dimension steps to its next value, the accumulation calculation restarts. i.e. Figure 1 shows sales within multiple countries over a number of dates – an expression can be created that accumulates the sales in order of the date for each country. The expression is as follows:

```
RangeSum(Above(total Sum(Sales),0,RowNo()))
```

The parameter within RangeSum() here uses Above() to grab the rolling sales values of the first row as the start of the range (0 represents the first row), and the current row as the end range (RowNo() represents current row). All values within the range are used in the calculation as shown below.

Accumulation				
Country	Date	Sales	Accumulation	RowNo
USA	21/01/2017	20	20	1
USA	05/02/2017	10	30	2
USA	22/02/2017	15	45	3
USA	16/03/2017	40	85	4
UK	01/01/2017	30	30	1
UK	04/02/2017	5	35	2
UK	16/02/2017	10	45	3
UK	10/03/2017	5	50	4
UK	20/03/2017	10	60	5

Figure6

The RowNo() resets for each new value within the first dimension allowing you to accumulate for each dimension value.

**TIP:** As illustrated in this white paper there are a number of methods to accumulate your data – each of which may prove more useful to you depending on your scenario. Do try each one; the scripting method and the in chart way where multiple functions are used – as your knowledge of other functions will improve and you will be able to use those to meet other business requirements.

If you have any queries, please contact Ricky Tanna.

