

JACKIE'S Forum

calculating Fields in DB2 Web Query



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DB2 Web Query allows you to control and create two different types of temporary fields. These fields are known in Report and Graph Assistant as Define fields and Compute fields. Developer Workbench uses the terms Virtual columns and Compute columns.

The basic difference is when the field is actually calculated. Define Fields (aka Virtual Columns) are calculated early in the process. They are calculated when the source data is passed to SQL for optimized processing or immediately following the data retrieval. Each record in the result set will have a Define field and it will be treated just like one of the source data columns.

Compute columns, on the other hand, are calculated after all the required data has been retrieved, sorted and summed. In other words the calculation is performed using the aggregated value of the selected fields.

Defines and Computes can give very different results because of when they occur in the processing. You need to be conscious

PRODUCT_TYPE	PRODUCT_NBR	REVENUE	QUANTITY
Audio	1	100	5
Audio	2	150	10
Audio	3	50	2

Figure 1.

of the differences when you are designing your report. Let's demonstrate this with an example. In **Figure 1** we have a very simple table with three records. We are creating an Average Price field by dividing REVENUE by QUANTITY. With Define fields, as we read each of the three records we calculate the Average Price. In this example the

Average Price for product 1 would be \$20, for product 2 it would be \$15, and for product 3 the average price would be \$25. By default, when we output the total record for Audio, the Average Price field will be summed giving a value of \$60—which is obviously not correct in this case. We can override the default and ask to have this column averaged on the total line instead of summed. The average of 15, 20, and 25 is \$20. This is closer but probably not what we are looking for either.

The Average Price Compute field will be calculated after all of the Audio records are

Product Type	Revenue	Quantity	Average Price (Compute Field)	Average price (Define Field)	Average (not SUM) of Define Field Average Price
Audio	300	17	17.65	60.00	20.00

Figure 2.

selected and summed. In this case Average Price will equal the total Audio Revenue of 300 divided by the total Audio Quantity of 17 for a value of 17.65. This is probably the value we were looking for. (See **Figure 2**.)

Normally with calculations involving aggregations you will want to use Compute fields. Notice in **Figure 3** that in Report Assistant you will use the wizard on the left in the Available fields box to create a Define field. The wizard near the Sum box on the right is used to calculate Compute fields. If you are defining the fields using Developer Workbench at the metadata level, selecting the option to add a Virtual Column will create a Define field. You can create a Compute field

by selecting the option to add a Compute.

There are other differences between Define and Compute fields based on when these temporary fields are created. You can select and sort on a Define field because it is essentially part of the input result set. You can also join tables using the Define field. A

Define field can be used as an Across field if your report is in a cross tab format. You cannot sort, select, join or use a Compute field as an Across field.

If you are doing calculations on aggregated data you need to use a Compute field. Compute fields can be more efficient than Define fields as they are only calculated on the aggregated values whereas Define fields are calculated for every source data record selected.

DB2 Web Query has excellent functionality when working with aggregated data. This continues with the Total check box on the sorting panel and the WHERE TOTAL option on the Selection panel allowing you to sort and filter on aggregated data. The flexibility is all there for you to use. Enjoy!

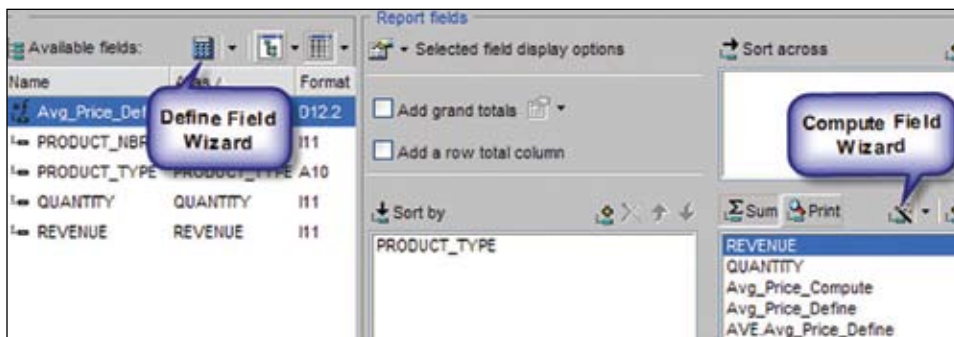


Figure 3.

Jackie Jansen currently works with Information Builders specializing in DB2 Web Query. Jackie is a frequent speaker at Technical Conferences and User Group meetings. Contact her at jackie_jansen@ibi.com.