How to Get the Document Count in a Query using Formula Variable with Processing Type Replacement Path

Pre-requisites:
Document Number (Purchase Order/Sales Order Number) should have been included as a characteristic in the Info Cube. It can be defined as a Line Item dimension for better Query performance.

Summary
In some business scenarios, it may be required to find out the document count for analyzing certain Key Performance Indicators (For example Number of Orders in a given period). This article illustrates the steps to get the Document Count in a Query using Formula variable with processing type as Replacement path. This article also brings forth one of the major differences between Calculated Key Figure and New Formula.

Author(s): Hari Krishnan K
Company: IVL India
Created on: 25 September 2006

Author Bio
Hari Krishnan K is working as a Development Consultant in SAP BW for IVL India, Trivandrum. He's a B-Tech graduate in Mechanical Production Engineering with 2 years of experience in SAP BW. He has excellent knowledge of SAP BW spanning areas like design and modeling of data warehouse, data staging and extraction, reporting and analysis including setting up BI executive cockpits and dashboards using BeX Web Application Designer.
Create a New Calculated Key Figure

The first step is to create a New Calculated Key figure for the Number of Documents/Orders.

Open Query Designer.

Create a new query or open an existing Query.

Drag and drop the required Characteristics and Key figures to the rows and columns depending on your business-reporting requirement.

From the context menu of the Key Figure directory, choose New Calculated Key Figure.

Provide a description, for example Number of Documents/Orders.

The next step is creating a formula variable for getting the document count.

From the context menu for the Formula Variable, choose New Variable.
Provide the technical name and description for the variable.
Choose the Processing type as Replacement Path.

In the next screen, select the Characteristic Info Object based on which the number of documents is to be displayed in the report (For example: Document Number / Order Number).
Choose Next.
In the **Replace Variable with** drop down box, choose **Attribute Value**.
In the **Attribute** drop down, select **Characteristic Reference (Constant 1)**.

Choose Next.
On the Save Variable page, an overview of the settings made for the variable will be displayed.
Confirm the entries and Choose Finish.
Open the formula variables directory and use Drag & Drop to transfer the formula variable as shown in the screen shot.

*If the Formula variable is directly assigned to the Calculated Key Figure, a warning Calculated Key Figure is not defined correctly will be displayed while executing the Query.*

To avoid the warning message, the formula variable is multiplied by 1 as shown in the screen shot.

Choose OK.

In the Properties of Calculated Key Figure dialog box, assign a Technical name for the CKF.

Set the number of Decimal placed to 0.

The most important step here is to set the **Time of Calculation to After Aggregation**.

Then only the total Number of Documents/Orders will be displayed correctly in the report.

*If it’s set to Before aggregation, when an existing document is changed in the source and data is loaded to the cube using a new delta request, the document count will be displayed as two instead of one.*

By Default the Time of Calculation is set to After Aggregation.
Choose OK.
The new calculated key figure is available under *Calculated Key Figure* in the Key Figure directory, and can be included in the query definition using Drag & Drop as shown in the screen shot below.

You may have to include another Key Figure also in the definition; otherwise an error message will be displayed in the query. If you don’t want to display the newly added key figure in the report, you can hide it by choosing Properties from context menu of the key figure and selecting the Hide option.

Save and Execute the Query.

The sample report shown here displays the total number of Documents/Orders for each plant on a daily basis.
Why Calculated Key figure instead of New Formula?

Reference: help.sap.com

The replacement of formula variables with the processing type *Replacement Path* acts differently in calculated key figures and formulas:

If you use a formula variable with "Replacement from the Value of an Attribute" in a calculated key figure, then the system automatically adds the drilldown according to the reference characteristic for the attribute. The system then evaluates the variables for each characteristic value for the reference characteristic. Afterwards, the calculated key figure is calculated and, subsequently, all of the other operations are executed, meaning all additional, calculated key figures, aggregations, and formulas. The system only calculates the operators, which are assembled in the calculated key figure itself, before the aggregation using the reference characteristic.

If you use a formula variable with Replacement from the Value of an Attribute in a formula element, then the variable is only calculated if the reference characteristic is uniquely specified in the respective row, column, or in the filter.

The screen shot below illustrates this difference between Calculated Key Figure and New Formula although both of them have been defined in the same way.

Thus for this scenario, only CKF can be used since New Formula will not give correct results.

Related Content

Replacement path variable: Replacement with a Characteristic Value

Calculated Key Figure Properties

Calculating Variables for Processing Type "Replacement Path"

Line Item Dimensions
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