

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.

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Author Bio



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Create a New Calculated Key Figure

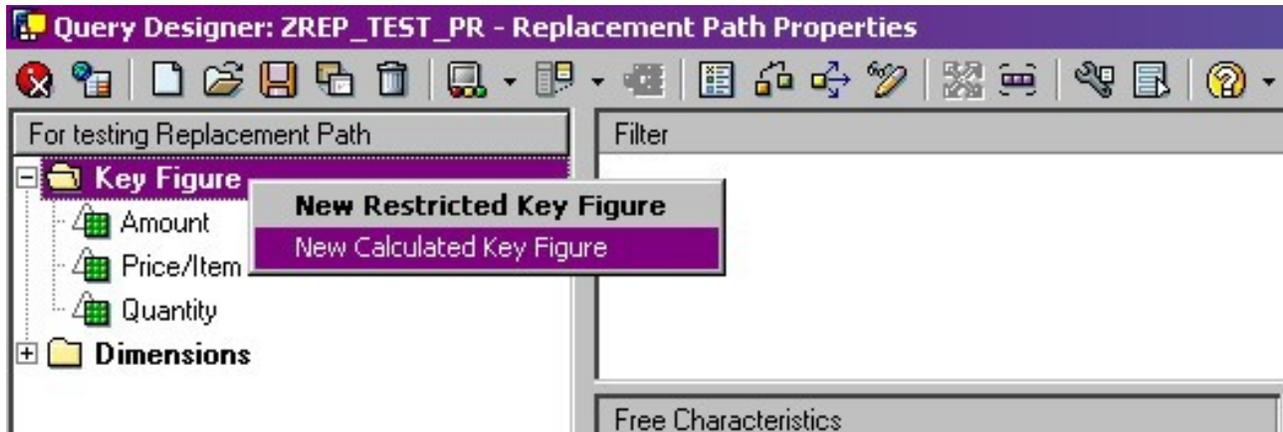
The first step is to create a New Calculated Key figure for the Number of Documents/Orders.

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.

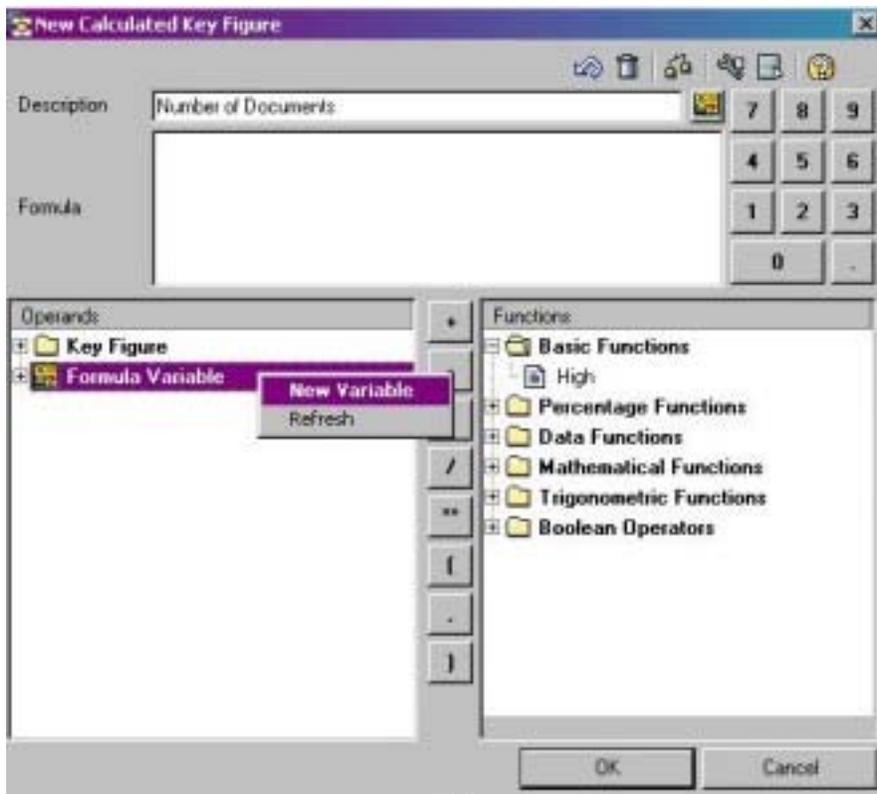
From the context menu of the **Key Figure** directory, choose **New Calculated Key Figure**.



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**.



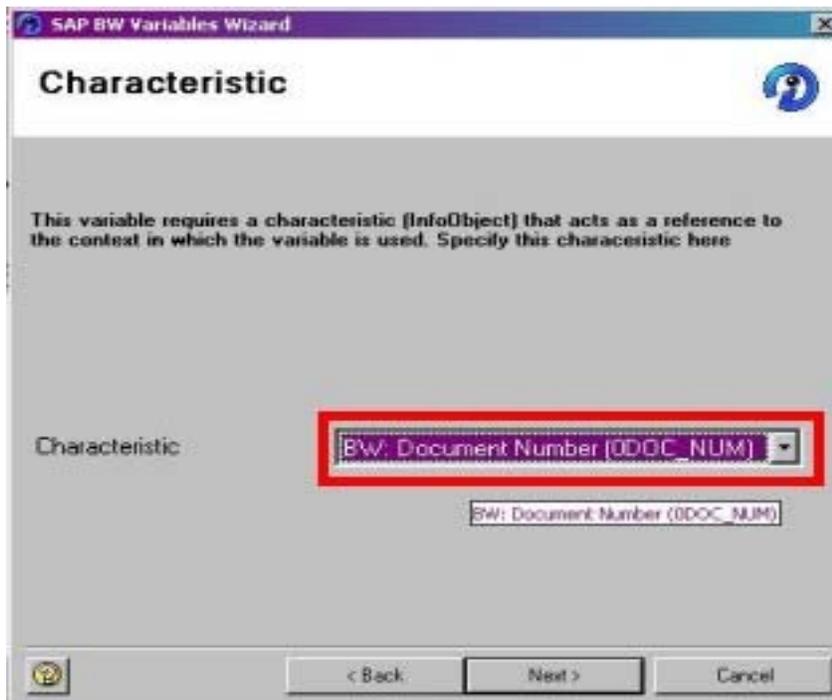
Provide the technical name and description for the variable.

Choose the **Processing type** as **Replacement Path**.



The screenshot shows the 'SAP BW Variables Wizard' window with the 'General Information' tab selected. The window title is 'SAP BW Variables Wizard'. Below the title bar, there is a header 'General Information' and a help icon. A paragraph of text explains that the variable type determines the category of values and the processing type determines how the variable is replaced. Below this text, there are four input fields: 'Type of Variable' (set to 'Formula'), 'Variable Name' (set to 'DOCCOUNT'), 'Description' (set to 'Number of Documents'), and 'Processing by' (set to 'Replacement Path', which is highlighted with a red box). At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

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).



The screenshot shows the 'SAP BW Variables Wizard' window with the 'Characteristic' tab selected. The window title is 'SAP BW Variables Wizard'. Below the title bar, there is a header 'Characteristic' and a help icon. A paragraph of text explains that the variable requires a characteristic (InfoObject) that acts as a reference to the context. Below this text, there is a 'Characteristic' input field with a dropdown menu set to 'BW: Document Number (ODOC_NUM)', which is highlighted with a red box. Below the dropdown, there is a text box containing 'BW: Document Number (ODOC_NUM)'. At the bottom, there are three buttons: '< Back', 'Next >', and 'Cancel'.

Choose Next.

In the **Replace Variable with** drop down box, choose **Attribute Value**.

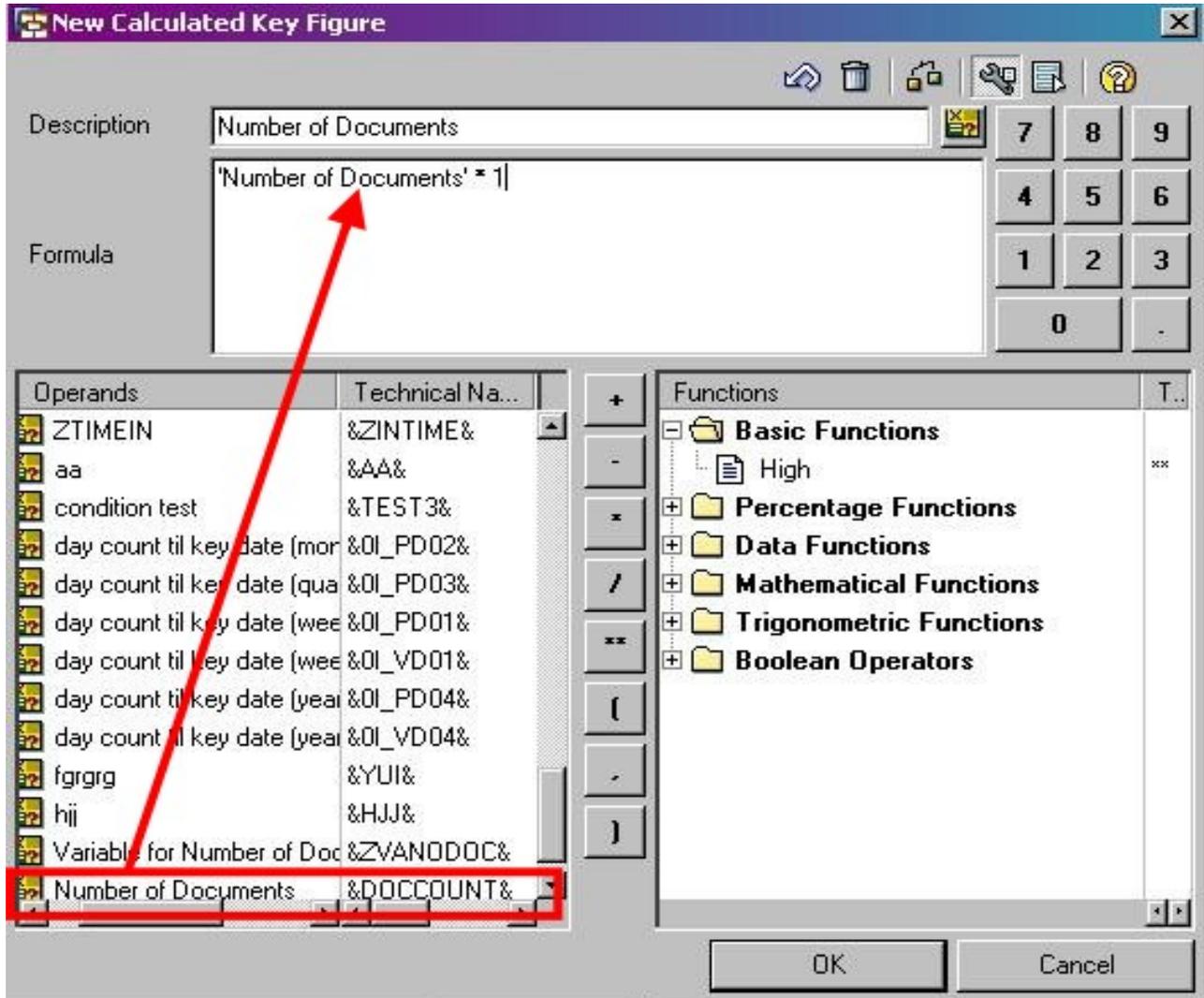
In the **Attribute** drop down, select **Characteristic Reference (Constant 1)**.

The screenshot shows the 'SAP BW Variables Wizard' window with the 'Replacement Path' tab selected. The window title bar includes a question mark icon, the text 'SAP BW Variables Wizard', and a close button. The main title 'Replacement Path' is displayed in a large font, accompanied by a help icon. Below the title, a paragraph of text explains that a variable can have one or more values determined automatically, and provides instructions on how to choose values for characteristics or attributes, use intervals, and specify text sections. The configuration area contains several fields: 'Replace Variable With' is a dropdown menu set to 'Attribute Value'; 'Attribute' is a dropdown menu set to 'Characteristic Reference (Constant 1)'; 'For Intervals Use' has three radio buttons, with 'From Value' selected; 'Offset Start' and 'Offset Length' are empty text boxes; and there is an unchecked checkbox for 'Evaluate as "Boolean" (Value 0 or 1)'. At the bottom, there is a help icon, and three buttons: '< Back', 'Next >', and 'Cancel'.

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.

Properties of the Calculated Key Figure

Technical Name
ZCKFDOCNT

Description
Number of Documents

Number Format
Scaling Factor: (Nothing Defined)
Number of Decimal Places: 0

Calculations (Includes Displayed Data Only)
Calculate Result As...: (Nothing Defined)
Calculate Single Values As...: (Nothing Defined)
 Cumulated
 Also Apply to Results
Use Default Direction

Currency Translation
Currency Conversion Key: (Nothing Defined)
Target Currency: (Nothing Defined)
 Variables Entry

Last Changed On/By
Owner: OBIZDEV; Last Changed By: OBIZDEV; Date/Time: 9/20/2006 4:55:14 PM

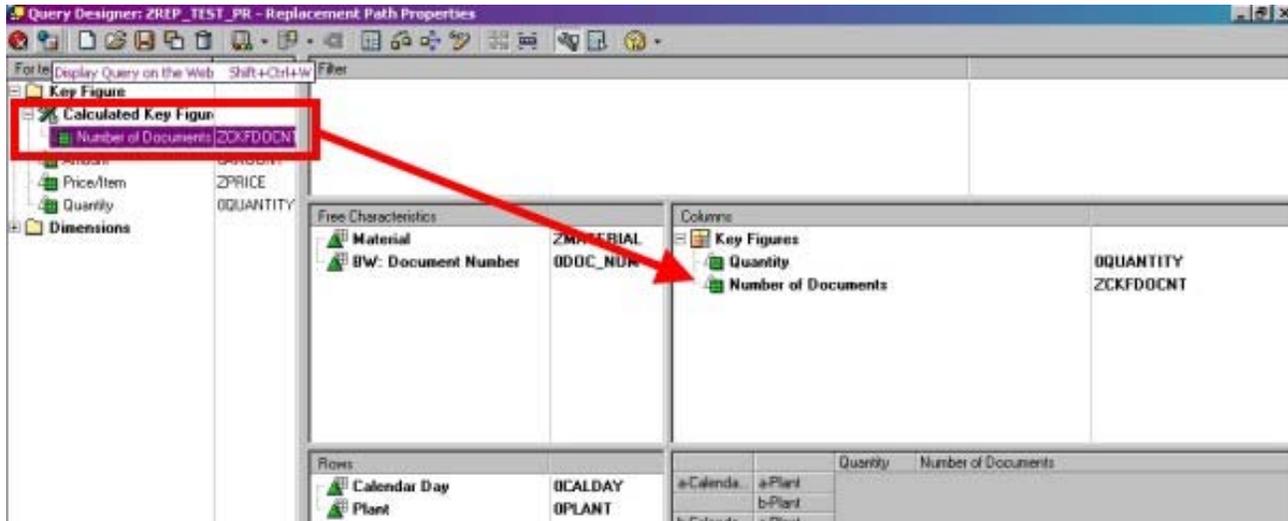
Aggregation
Time of Calculation: After Aggregation

OK Cancel

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.

Replacement Path Properties

BW: Document Number | Calendar Day | Material

Plant | Key Figures

Calendar Day	Plant	Quantity	Number of Documents
16.09.2006	IND1	1,000.000 EA	5
	IND2	400.000 EA	2
	Result	1,400.000 EA	7
17.09.2006	IND1	100.000 EA	1
	IND2	100.000 EA	1
	Result	200.000 EA	2
Overall Result		1,600.000 EA	9

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.

Replacement Path Properties				
BW: Document Number		Calendar Day	Material	
Plant		Key Figures		
Calendar Day	Quantity	Number of Documents	New Formula	
16.09.2006	1,400.000 EA	7	1.0000000	
17.09.2006	200.000 EA	2	1.0000000	
Overall Result	1,600.000 EA	9	1.0000000	

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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