

Customizing the Analytics Solution : Adding Measure to Fact Table

Customization Guide

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PRE-IMPLEMENTATION OF CUSTOMIZATION

DESCRIPTION OF USE CASE

I need to add a new measure into existing Fact Table. Transformation logic for this new custom measure should be based on new custom stored procedure which represent Custom Helper for existing Fact Table.

GOAL OF THIS CUSTOMIZATION

The goal is to extend data model about new custom measure which can get bring new interesting information into data model based on business needs. The new custom measure will be created on SQL layer and then added into OLAP layer for make possibility to use this new custom measure in any BI reporting tool.

RELATED LAYER OF CHANGES

This customization is related to changes on following layers of data model:

1. SQL Layer
 - HEA Metadata Tables
 - HEA.EntityHelper
 - Add Custom Measure to Fact Table
 - New column <MeasureName> on Stage.Fact<FactName>
 - New column <MeasureName> on Final.Fact<FactName>
 - New stored procedure, CustomStage.HelperFact<FactName> Stage_<MeasureName>
2. SSAS Layer
 - Changes in DataSource View
 - Changes in existing Measure Group (Add new measure into measure group)
3. Report Layer (Pyramid/ other BI tool)
 - Refresh metadata
 - Use new Custom Dimension Attribute in reports

LIST OF NEEDED CODE TEMPLATES

This is the list of code templates which are needed for successful added new custom dimension into data model. It is necessary to edit and run following code templates in order as follows:

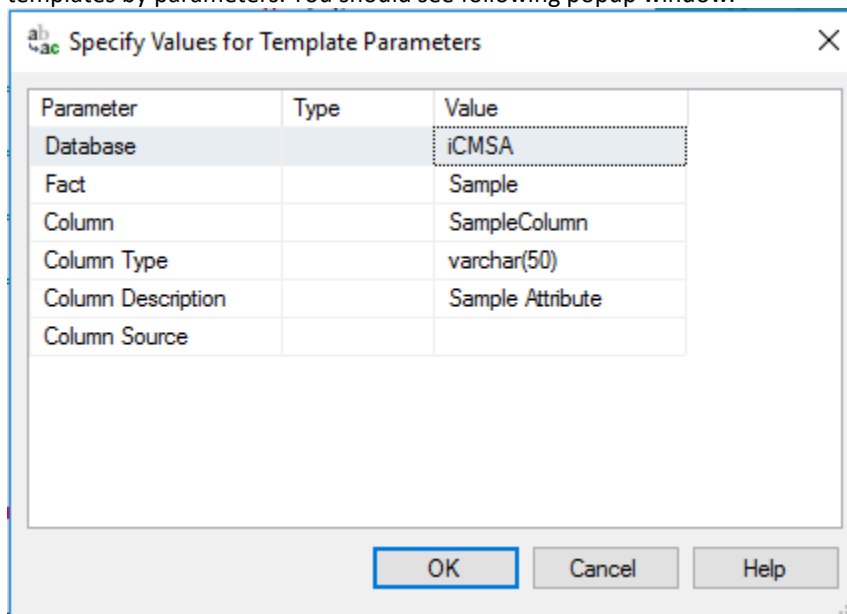
1. Common.Add Measure to Fact Table – Add Custom Measure to Fact Table and transformation logic for this new Measure.
2. Process Entity – Process new created / added of objects.

IMPLEMENTATION OF CUSTOMIZATION

IMPLEMENTING CUSTOMIZATION IN STEP BY STEP

ALL CHANGES RELATED TO SQL LAYER

1. Open code template #1 - Common.Add Measure to Fact Table.sql and read the template instructions in heading of the template.
2. After reading the instructions, you have to hit the keyboard combination CTRL+SHIFT+M for filling templates by parameters. You should see following popup window.



The image shows a dialog box titled "Specify Values for Template Parameters" with a close button (X) in the top right corner. It contains a table with three columns: "Parameter", "Type", and "Value". The table has six rows of data. Below the table are three buttons: "OK", "Cancel", and "Help".

Parameter	Type	Value
Database		iCMSA
Fact		Sample
Column		SampleColumn
Column Type		varchar(50)
Column Description		Sample Attribute
Column Source		

3. It is necessary to replace example values by real one based on the instructions in heading of the template. After the value are replaced click on „OK“ and all needed place in code are filled with parameters.
4. Now its necessary to make additional changes as follows. The whole code template is divided into fourth section (A, B, C). Each section is required to apply small changes based on your new custom dimension.

5. In „**Section A**“ is not necessary to do any changes manually. The appropriate changes into following subsection are applied by filling template variables in step #2:

1. Add column to Stage and Final tables

In this subsection the new dimension attribute is added into Stage and Final schema for appropriate Fact Table.

6. Navigate into „**Section B**“ and apply appropriate changes into following subsection:

1. Add Helper to populate the custom attribute

In this subsection is necessary to create own logic for updating this new Measure in Fact Table.

For adding own logic for this new attribute, please edit following part of the code. The values placed in „<>“ will automatically replaced by filling the templates variable from step #2.

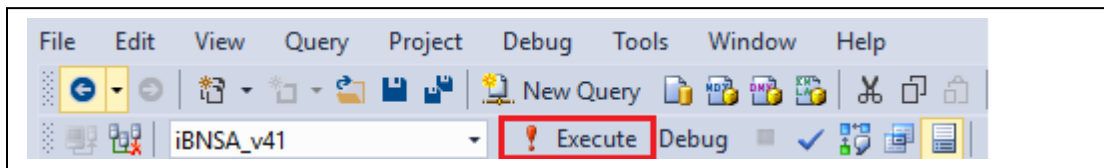
```
-- Insert your code here
update
  f
set
  <Column>, SampleColumn = '0'
from
  Stage.Fact<Fact>, Sample> f
go
```

7. Navigate into „**Section C**“ and apply appropriate changes into following subsection:

1. Add entry to HEA.EntityHelper

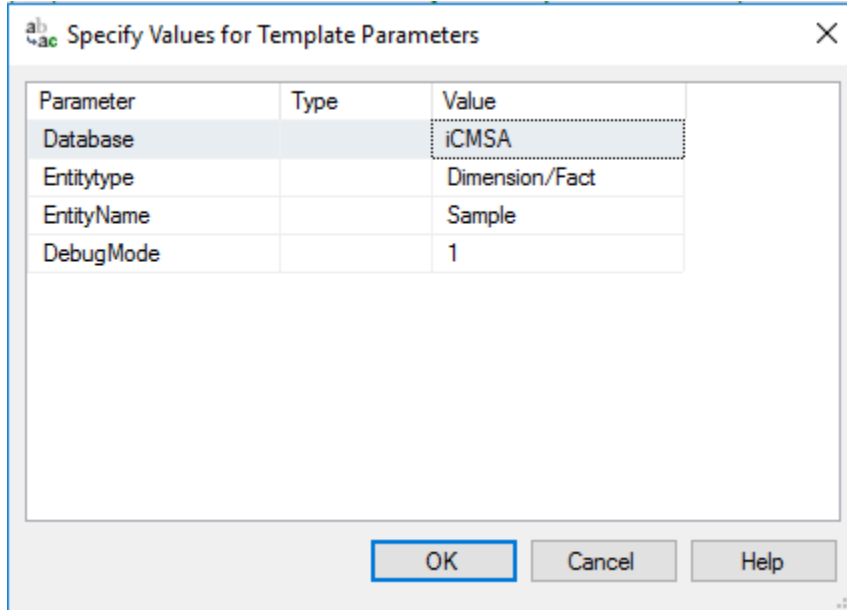
In this subsection is not necessary to do any changes, they will be applied by templates variable from step #2. It can occur error message during executing this code related to Execution Order value. Please if occurs, change default value „10“ to any other for which is not already assigned to any another helper.

8. Execute whole script by hitting „F5“ or clicking on „Execute“ button.



9. Now it is necessary to process Fact Table with new Custom Measure. Open the code template #3 – Process Entity.sql under your database where the new dimension has been created.

10. After reading the instructions, you have to hit the keyboard combination CTRL+SHIFT+M for filling templates by parameters. You should see following popup window.



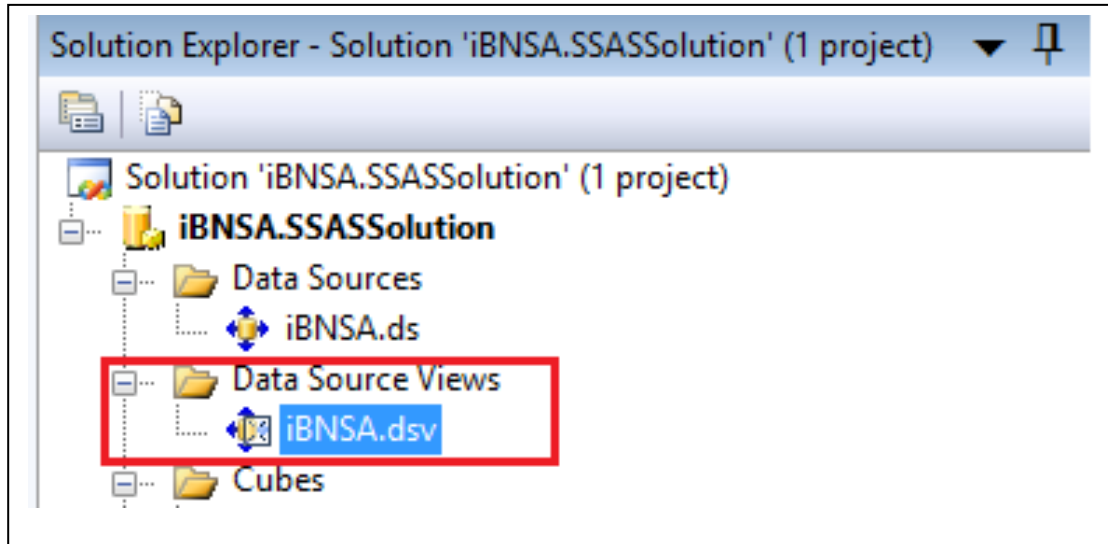
A screenshot of a Windows-style dialog box titled "Specify Values for Template Parameters". The dialog contains a table with three columns: "Parameter", "Type", and "Value". The table has four rows of data. The "Database" row has "iCMSA" in the "Value" column, which is highlighted with a dashed border. The "Entitytype" row has "Dimension/Fact" in the "Value" column. The "EntityName" row has "Sample" in the "Value" column. The "DebugMode" row has "1" in the "Value" column. Below the table, there are three buttons: "OK", "Cancel", and "Help". The "OK" button is highlighted with a blue border.

Parameter	Type	Value
Database		iCMSA
Entitytype		Dimension/Fact
EntityName		Sample
DebugMode		1

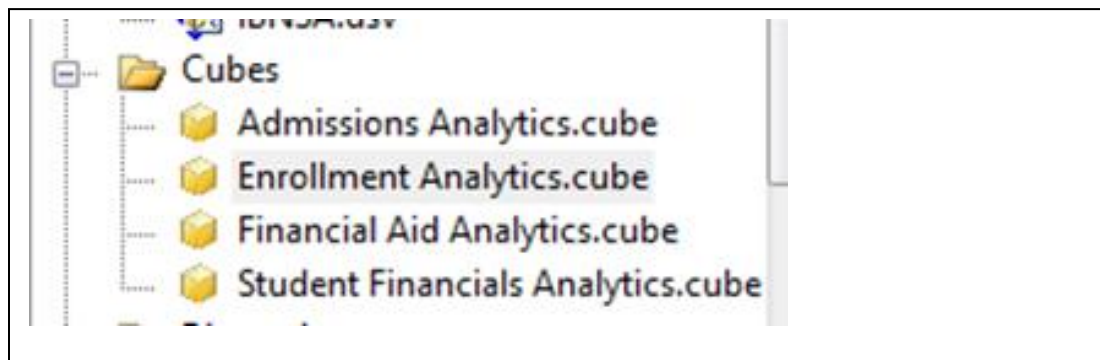
11. It is necessary to replace exmple values by real one based on the instrunctions in heading of the template. After the value are replaced click on „OK“ and all needed place in code are filled with parameters.
12. Execute whole script by hitting „F5“ or clicking on „Execute“ button in same manner in step #9.

ALL CHANGES RELATED TO SSAS LAYER

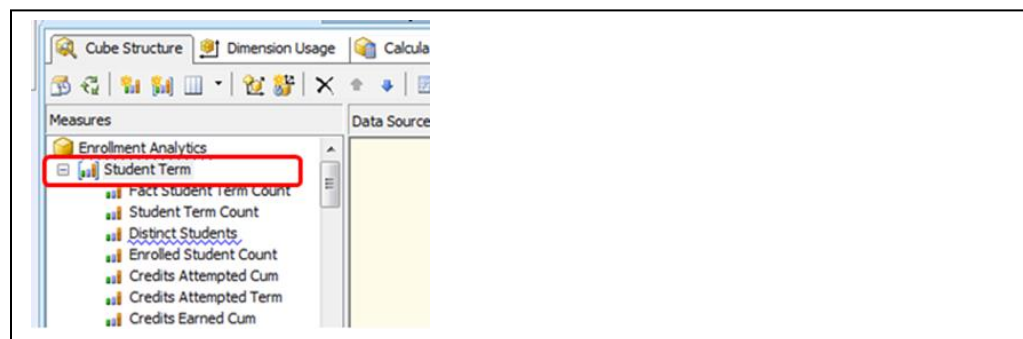
1. Open the SSAS Solution in Business Development Studio (BIDS) or SQL Data Tools (SQL Server 2012.)
2. Double clicking the data source view in the Solution Explorer window.



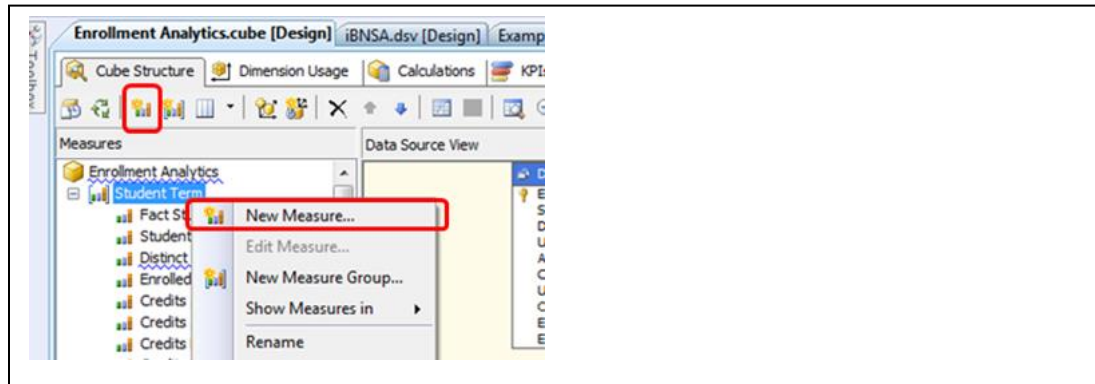
3. Open the cube where you want to display the new measure..



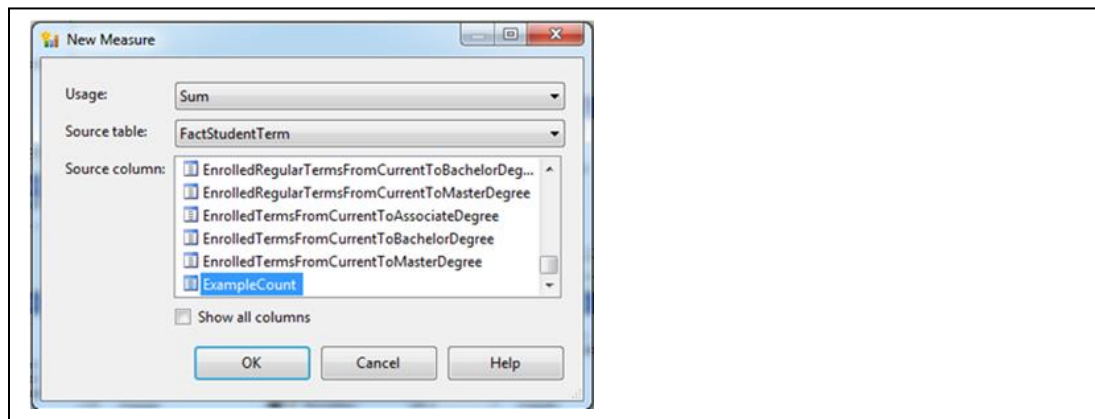
4. Select the appropriate measure group related to the fact table.



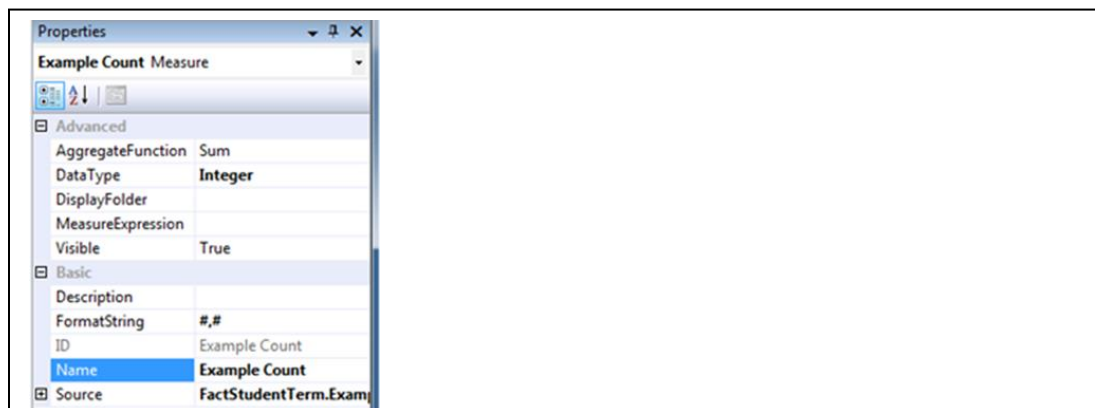
5. Either right click the Measure Group and select “New Measure” or press the “New Measure” button to add a new measure to the Measure Group.



6. Select the new measure from the list of columns.



7. Set the properties for the measure, such as, the FormatString, DataType, and the Name.



8. If the measure needs to be displayed to the user, enable the measure in the correct Cube Perspective.

- Select the Perspectives tab
- Find the measure, and check the box under the appropriate perspective

Cube Objects	Objective Name	Perspective Name	Perspective Name	Perspective Name	Perspective Name
Enrollment Analytics	Name	StudentTerm	StudentTerm FA	Class Instruction	Class Meeting
DefaultMeasure	Count	Student Term Count	Student Term Count		
Measure Groups					
Student Term	MeasureGroup	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fact Student Term Count	Measure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Student Term Count	Measure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Distinct Students	Measure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enrolled Student Count	Measure	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Months to Master Degree	Measure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enrolled Regular Terms to Assoc...	Measure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enrolled Regular Terms to Bachel...	Measure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enrolled Regular Terms to Master ...	Measure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enrolled Terms to Associate Degree	Measure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enrolled Terms to Bachelor Degree	Measure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Enrolled Terms to Master Degree	Measure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Example Count	Measure	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Student Plan	MeasureGroup	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fact Student Plan Count	Measure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

9. Deploy the SSAS Solution and test the custom Measure.