

Quantity Conversion Guide for SAP Business Intelligence



Applies to:

SAP BI 7.0. For more information, visit the [Business Intelligence homepage](#).

Summary

This article aims at demonstrating the Quantity Conversion feature in SAP BI and exploring various possibilities while using it.

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Unit 1: Introduction

In NW04s BI Quantity Conversion can be used to convert Key Figure values from unit of measure to another. This conversion can be performed in transformation rule while loading data or in BEx at query runtime.

From simple quantity conversions (like KiloGram to Pounds) to complicated ones (like finding total liters of water in a pallet of mineral water) are possible using this feature.

Quantity Conversion Types forms the basis of Quantity Conversion in BI. In simple words, Quantity Conversion Type is a rule where we define the source and target unit of measure and the conversion factor for converting source unit of measure to target unit of measure.

Quantity Conversion Types can be accessed/defined via Transaction Code: RSUOM or menu path: *SAP Menu* → Modeling → Object Maintenance → Unit Conversion Types on the SAP Easy Access screen for SAP NW Business Intelligence.

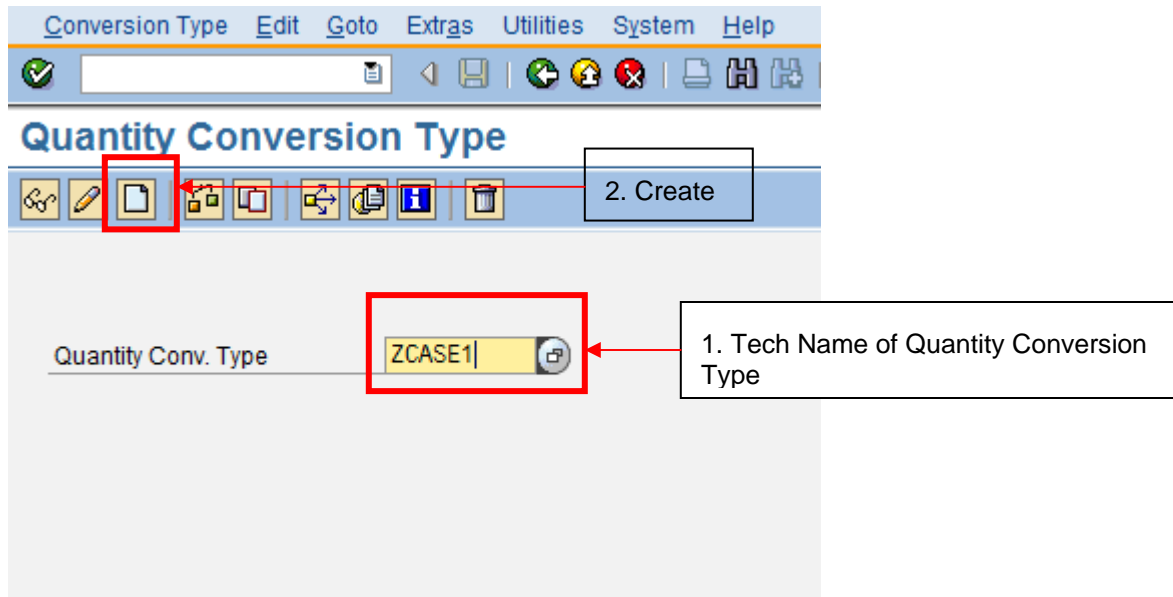
There are many variations possible while defining the rules for quantity conversion. In the following sections of this document I have tried to explain these possibilities with the help of an example.

Unit 2: Quantity Conversion in Transformation Rule using Central Units of Measure (T006) as a source of Conversion Factor

Example: Records from the source system have UoM Kilograms. Requirement is to convert these records into US Pounds.

Before being able to do Quantity Conversion it is required to define/maintain a Quantity Conversion Type. This can be done via transaction code RSUOM or menu path: *SAP Menu* → Modeling → Object Maintenance → Unit Conversion Types on the SAP Easy Access screen for SAP NW Business Intelligence.

On the first screen type in a technical name for the Quantity Conversion Type and click on create button.



In the next screen enter the description for this Quantity Conversion Type. Select the radio button Dynamic Determination of Conversion Factor and choose the option “Using Central Units of Measure (T006)” from the drop down.

Quantity Conversion Type Edit

Object Directory Entry

Conversion Type: ZCASE1

Long Description: Case1: using Central Units of Measure (T006)

Short Description: Case1

Hdr data | Conversion Factors | UoM

Dynamic Determination of Conversion Factor

Using Central Units of Measure (T006)

Reference InfoObject

Conversion Factor from InfoObject

Allow initial source value in the transformation and planning function

Option “Using Central Units of Measure (T006) can only be used when source and target Unit of Measure belong to the same dimension (ex: grams to kilograms).

Before using this option it is recommended to update this table in SAP BI system from the source SAP system where the unit conversions are maintained. Refer http://help.sap.com/saphelp_nw70/helpdata/EN/34/e76e424925c253e10000000a1550b0/content.htm for procedure.

Select the tab UoM. Under Source Unit of Measure select radio button Unit of Measure from DataRecord. In the box Target Unit of Measure select radio button Fixed Unit of Measure and type LB in the box against it. Save the Quantity Conversion Type.

Hdr data	Conversion Factors	UoM
Source Unit of Measure		
<input checked="" type="radio"/>	Unit of Measure from DataRecord	
<input type="radio"/>	Fixed Unit of Measure	
<input type="radio"/>	InfoObject for Determining Unit of Measure	
	Associated Quantity Attribute	
<input type="radio"/>	Source Quantity from Variable	
Target Unit of Measure		
<input type="radio"/>	Selection of Unit of Measure during Conv.	
<input checked="" type="radio"/>	Fixed Unit of Measure	LB US pound
<input type="radio"/>	Target Quantity from Variable	
<input type="radio"/>	InfoObject for Determining Unit of Measure	
	Associated Quantity Attribute	
<input type="radio"/>	InfoSet	
	InfoProvider/Table Alias	
	InfoObject/Field Alias	
	Technical Name	

In the Transformation Rules go to the rule details of the KeyFigure which should hold the records in Converted UoM.

In this example I am making use of two KeyFigures 0QUANT_B (to hold source records) and 0QUANTITY (to hold records in converted UoM).

In the source fields of rule add the source fields and do the IO Assignment for these fields. In the drop down for unit select "Conversion" and in the box against Conversion Type enter the technical name Quantity Conversion Type.

Rule Details

Description

Target InfoObject: 0QUANTITY Quantity

Rule Type: Direct Assignment

Aggregation: Summation

Unit

Target Unit: 0UNIT Unit of measure

Unit: from Conversion

Conversion Type: ZCASE1 US pound

Source Unit: BASE_UOM Base Unit

Source Fields of Rule:

Field	Long Description	Type	Ln...	Conv....	IOAssgnmnt	Long Description
BASE_UOM	Base Unit	UNIT	3	CUNIT	0BASE_UOM	Base Unit of Mea...
QUANT_B	Qty in Base UoM	QUAN	17		0QUANT_B	Quantity in base ...

Target Fields of Rule:

InfoObject	I...	Long Description	Type	Ln...	Conv....
0QUANTITY		Quantity	QUAN	9	
0UNIT		Unit of measure	UNIT	3	CUNIT

Transfer Values

Save and activate the transformation rules and perform the data load. Figure below shows the source data in PSA and report based on this data.

PSA Maintenance

Data records to be edited

Status	DataPacket	Data Rec.	Customer	Material	Company co	Distributi	Cal. year	Qty in Bas	BASE_UOM
	1	1	0000001136	M01	10	1	200810	1	KG
	1	2	0000001136	M01	10	1	200811	5	KG
	1	3	0000001136	M02	10	1	200810	10	KG
	1	4	0000001136	M02	10	1	200811	1	KG
	1	5	0000001136	M03	10	1	200810	5	KG
	1	6	0000001136	M03	10	1	200811	10	KG

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Customer	Material	Qty in Source UoM	Quantity in Conv. Uom
Star Supermarkets	Apple	6.0000 KG	13.2280 LB
	Orange	11.0000 KG	24.2510 LB
	Banana	15.0000 KG	33.0690 LB
	Result	32.0000 KG	70.5480 LB
Overall Result		32.0000 KG	70.5480 LB

Unit 3: Quantity Conversion in Transformation Rule using a reference InfoObject as a source of Conversion Factor

Example: Quantity of orders in the source system is Pallet. In BI you want a flexibility to report on Quantity in Pallets, Cases, Bottles and Milliliters.

Below is the conversion table you have from the vendor:

Material	Unit Quantity	Cases/Pallet	Bottles/Case
Splash 330ml	Pallet	120	24 X 330ml
Splash 500ml	Pallet	90	18 X 500ml

To demonstrate this example I have added four KeyFigures to the InfoCube:

Quantity in Base UoM (0QUANT_B), Quantity in Cases (fixed unit of measure Case), Quantity in Bottles (fixed unit of measure Bottles) and Quantity (0QUANTITY)

We will make use of the option “Using Reference InfoObject” in Quantity Conversion Type to achieve the above conversions. Before using this option there are a few prerequisites steps which should be performed:

1. **Specify the base unit of measure for Material:** Go to Business Explorer tab in the InfoObject maintenance of the characteristic which stores the product/material. Under general settings enter the attribute of this InfoObject which holds the Base UoM for each material.

Change Characteristic 0MATERIAL: Detail

Characteristic: 0MATERIAL
 Long description: Material
 Short description: Material
 Version: Active
 Object Status: Active, executable

General settings

Display	Key and Text
Text Type	Default
BEx description	Short description
Selection	No Selection Restriction
Query Def. Filter Value Selection	Values in Master Data Table
Query Execution Filter Val. Selectn	Only Posted Values for Navigation
Filter Value Repr. At Query Exec.	Selector Box without values
Base Unit of Measure	0BASE_UOM Base Unit of Measure

2. In the MasterData of material this field (0BASE_UOM) should have the base UoM for each material. In this case for materials Splash 330ml and Splash 500ml it should be Pallet.

Characteristic 0MATERIAL - maintain master data: List

Icons: Search, New, Edit, Delete, Copy, Print, Filter, Data Records to be Edited

Material	Medium Description	Base Unit	L	AFS: Color	Fabric Con	Target gro	AFS Gr
M04	Splash 330ml Pallet	PAL	EN				
M05	Splash 500ml Pallet	PAL	EN				

3. **Create Quantity DataStore object:** It is very important to store conversion factors in quantity DSO while using this option. If this is not done data load will give error when it does not find the corresponding conversion factors in quantity DSO.

On tab page (as point 1) click on create button next to the box which says Units of Measure for Char.

General settings	
Display	Text
Text Type	Medium-Length Text
BEx description	Short description
Selection	No Selection Restriction
Query Def. Filter Value Selection	Only Values in InfoProvider
Query Execution Filter Val. Selectn	Only Posted Values for Navigation
Filter Value Repr. At Query Exec.	Selector Box Without Values
Base Unit of Measure	@BASE_UOM
Units of Measure for Char.	<input type="button" value="Create"/>
Currency attribute	
<input type="checkbox"/> AuthorizationRelevant	

In the next screen which pops up specify the Name, Description and InfoArea for quantity DSO. The system proposes the name: UOM<Name of InfoObject to which the quantity DataStore Object is being added>.

DataStore Object	
DataStore Object	UOM@MATE
InfoArea	ZQUAN_CONV
LongText	Generated DataStore Object (Units of Measure):

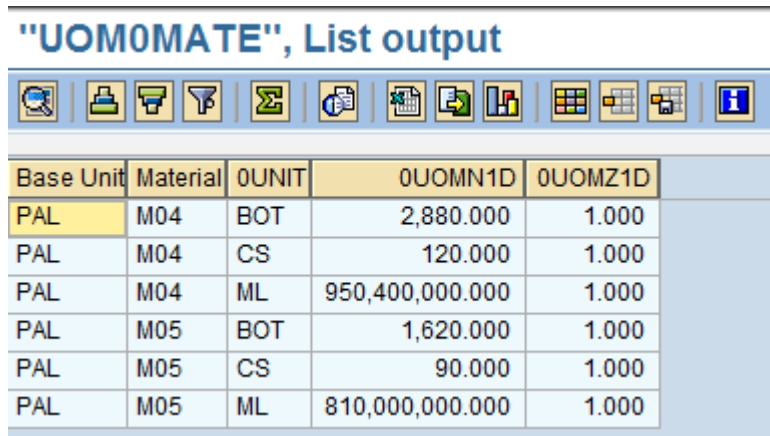
Click on green check box or hit the enter key. This will create and activate the Quantity DSO.

The generated DSO has the following structure:

Key	<Characteristic>
Key	<Compounding for characteristic, where applicable>
Key	<Unit of measure that you can convert into>
	<Base unit of measure>
	<Conversion factor: Counter>
	<Conversion factor: Denominator>
	<SID_Characteristic>
	<SID_Compounding for characteristic, where applicable>
	<SID_Unit of measure that you can convert into>
	<SID_Base unit of measure>

4. Note:
- Assignments of quantity DataStore objects to characteristics are 1:1. This means that only one characteristic can be assigned to a quantity DataStore object and one quantity DataStore object can be assigned to a characteristic.
 - You cannot enhance or change a quantity DataStore object in DataStore object maintenance because the object is generated by the system. You can only display it.
 - You can fill the quantity DataStore object with data only by using a data transfer process with transformation; update rules are not supported in this case.
 - If the characteristic that has quantity DataStore object assigned to it is changed, you have to delete the quantity DataStore object and regenerate it.
5. Create DataSource, Transformation Rules, DTP and load this DSO with conversion rules. Figure below shows the contents of quantity DSO used for this example:

"UOM0MATE", List output



Base Unit	Material	UUNIT	UOUMN1D	UOUMZ1D
PAL	M04	BOT	2,880.000	1.000
PAL	M04	CS	120.000	1.000
PAL	M04	ML	950,400,000.000	1.000
PAL	M05	BOT	1,620.000	1.000
PAL	M05	CS	90.000	1.000
PAL	M05	ML	810,000,000.000	1.000

This table can be read as (for material M04):

- 1 PAL = 120 CS
- 1 PAL = 2880 BOT
- 1 PAL = 950400000 ML

Where PAL, CS, BOT and ML are UoM for Pallet, Case, Bottle and Milliliter respectively

Once all the prerequisites are met we can now create the Quantity Conversion Types. Let's first define a Quantity Conversion Type for KeyFigure Quantity in Cases. This can be done via transaction code RSUOM or menu path: *SAP Menu* → Modeling → Object Maintenance → Unit Conversion Types on the SAP Easy Access screen for SAP NW Business Intelligence.

Select the radio button Dynamic Determination of Conversion Factor and choose the option "Using Reference InfoObject". In the Reference InfoObject box enter 0MATERIAL.

Quantity Conversion Type Edit

Object Directory Entry

Conversion Type: ZCASE2_1
 Long Description: Case2: using reference InfoObject Tagert Unit Case
 Short Description: Case2

Hdr data | **Conversion Factors** | UoM

Dynamic Determination of Conversion Factor

Using Reference InfoObject

Reference InfoObject: @MATERIAL Material

Conversion Factor from InfoObject

Allow initial source value in the transformation and planning function

Select the tab UoM. Under Source Unit of Measure select radio button Unit of Measure from DataRecord. In the box Target Unit of Measure select radio button Fixed Unit of Measure and type CV in the box against it. Save the Quantity Conversion Type.

Hdr data | Conversion Factors | **UoM**

Source Unit of Measure

Unit of Measure from DataRecord

Fixed Unit of Measure

InfoObject for Determining Unit of Measure

Associated Quantity Attribute

Source Quantity from Variable

Target Unit of Measure

Selection of Unit of Measure during Conv.

Fixed Unit of Measure CV Case

Target Quantity from Variable

InfoObject for Determining Unit of Measure

Associated Quantity Attribute

InfoSet





InfoProvider/Table Alias

InfoObject/Field Alias

Technical Name

Same way define a Quantity Conversion Type for KeyFigure Quantity in Bottle. Only difference would be Fixed Unit of Measure for target will be BT (Bottle).

Quantity Conversion Type Edit

    Object Directory Entry

Conversion Type	ZCASE2_2
Long Description	Case2: using reference InfoObject Target Unit Bottles
Short Description	Case2

Hdr data | **Conversion Factors** | **UoM**

Source Unit of Measure

Unit of Measure from DataRecord

Fixed Unit of Measure

InfoObject for Determining Unit of Measure

Associated Quantity Attribute

Source Quantity from Variable

Target Unit of Measure

Selection of Unit of Measure during Conv.

Fixed Unit of Measure Bottle

For KeyFigure 0QUANTITY let's define Target UoM using a different option just for the purpose of demonstration. Create a new Quantity Conversion Type, select the radio button Dynamic Determination of Conversion Factor and choose the option "Using Reference InfoObject". In the Reference InfoObject box enter 0MATERIAL.

Select the tab UoM. Under Source Unit of Measure select radio button Unit of Measure from DataRecord. In the box Target Unit of Measure select radio button InfoObject for determining Unit of Measure. In the box against it enter 0MATERIAL and enter 0VOLUMEUNIT as Associated Quantity Attribute.

Quantity Conversion Type Edit

Object Directory Entry

Conversion Type: ZCASE2_3
 Long Description: Case2: using reference InfoObject Target from IO
 Short Description: Case2

Hdr data | Conversion Factors | **UoM**

Source Unit of Measure

Unit of Measure from DataRecord
 Fixed Unit of Measure
 InfoObject for Determining Unit of Measure
 Associated Quantity Attribute
 Source Quantity from Variable

Target Unit of Measure

Selection of Unit of Measure during Conv.
 Fixed Unit of Measure
 Target Quantity from Variable
 InfoObject for Determining Unit of Measure
 Associated Quantity Attribute
 InfoSet
 InfoProvider/Table Alias
 InfoObject/Field Alias
 Technical Name

0MATERIAL Material
 0VOLUMEUNIT Volume unit

In order to use this option the InfoObject used (to determine the UoM) should have at least one attribute of type UNIT. Value of this attribute is used a target UoM for the corresponding InfoObject value.

In this example I have set value of 0VOLUMEUNIT to milliliter (ML) for both the materials.

Characteristic 0MATERIAL - maintain master data

Medium Description	Material	Base Unit	Volume unit	AFS: Color	Fabric C
Splash 330ml Pallet	M04	PAL	ML	EN	
Splash 500ml Pallet	M05	PAL	ML	EN	

Screen shots below show the Transformation Rule Details for KeyFigures Quantity in Cases (ZQ_CASE), Quantity in Bottles (ZQ_BOTTLE) and Quantity (0QUANTITY) respectively.

Rule Details

Description: [Empty field]

Target InfoObjct: ZQ_CASE Quantity in Case

Rule Type: Direct Assignment

Aggregation: Summation

Unit

Fixed Target Unit: CV Case

Unit: from Conversion

Conversion Type: ZCASE2_1

Source Unit: BASE_UOM

Source Fields of Rule:

Field	Long Description	Type	Ln...	Conv...	IOAssgnmnt	Long Description
BASE_UOM		UNIT	3	CUNIT	0BASE_UOM	Base Unit of Mea...
MATERIAL	Material	CHAR	18	MATN1	0MATERIAL	Material
QUANT_B	Qty in Base UoM	QUAN	17		0QUANT_B	Quantity in base ...


Target Fields of Rule:



InfoObject	I...	Long Description	Type	Ln...	Conv...
ZQ_CASE		Quantity in Case	QUAN	9	



Transfer Values

Rule Details

Description



Target InfoObjct  ZQ_BOTTLE Quantity in Bottles


Rule Type  Direct Assignment 

Aggregation  Summation 

Unit

Fixed Target Unit BT Bottle

Unit  from Conversion 


Conversion Type ZCASE2_2 








Source Unit BASE_UOM

Source Fields of Rule:

Field	Long Description	Type	Ln...	Conv...	IOAssgnmnt	Long Description
BASE_UOM		UNIT	3	CUNIT	0BASE_UOM	Base Unit of Mea...
MATERIAL	Material	CHAR	18	MATN1	0MATERIAL	Material
QUANT_B	Qty in Base UoM	QUAN	17		0QUANT_B	Quantity in base ...

Target Fields of Rule:

InfoObject	I...	Long Description	Type	Ln...	Conv....
ZQ_BOTTLE		Quantity in Bottles	QUAN	9	

 Transfer Values      

Rule Details

Description: [Empty field]

Target InfoObjct: 0QUANTITY Quantity

Rule Type: Direct Assignment

Aggregation: Summation

Unit

Target Unit: 0UNIT Unit of measure

Unit: from Conversion

Conversion Type: ZCASE2_3

Source Unit: BASE_UOM

Source Fields of Rule:

Field	Long Description	Type	Ln...	Conv...	IOAssgnmnt	Long Description
BASE_UOM		UNIT	3	CUNIT	0BASE_UOM	Base Unit of Mea...
MATERIAL	Material	CHAR	18	MATN1	0MATERIAL	Material
QUANT_B	Qty in Base UoM	QUAN	17		0QUANT_B	Quantity in base ...

Target Fields of Rule:

InfoObject	I...	Long Description	Type	Ln...	Conv....
0QUANTITY		Quantity	QUAN	9	
0UNIT		Unit of measure	UNIT	3	CUNIT

Transfer Values [Icons]

Save and activate the transformation rules, after that load data into InfoCube. Screen shots below show the source data in PSA and the target data in the report.

PSA Maintenance

Data records to be edited

Status	DataPacket	Data Rec.	Customer	Material	Company co	Distributi	Cal. year	Qty in Bas	BASE_UOM
<input checked="" type="checkbox"/>	1	1	0000001136	M04	10	1	200810	1	PAL
<input checked="" type="checkbox"/>	1	2	0000001136	M04	10	1	200811	5	PAL
<input checked="" type="checkbox"/>	1	3	0000001136	M05	10	1	200810	10	PAL
<input checked="" type="checkbox"/>	1	4	0000001136	M05	10	1	200811	1	PAL

Customer	Material	Qty in Base UoM	Quantity in Case	Quantity in Bottles	Quantity in ML
Star Supermarkets	Splash 330ml Pallet	6 PAL	720 CV	17,280 BT	5,702,400,000.000 ML
	Splash 500ml Pallet	11 PAL	990 CV	17,820 BT	8,910,000,000.000 ML
	Result	17 PAL	1,710 CV	35,100 BT	14,612,400,000.000 ML
Overall Result		17 PAL	1,710 CV	35,100 BT	14,612,400,000.000 ML

Note:

It is recommended to set the indicator “Allow initial source value in the transformation and planning function” while using this option. If this indicator is set than for records with initial source values in the transformation and planning function an empty target quantity and an empty target quantity unit of measure is generated. If the indicator is not set, an error message appears and the record is not updated.

Hdr data | Conversion Factors | UoM

Dynamic Determination of Conversion Factor

Using Reference InfoObject

Reference InfoObject

Conversion Factor from InfoObject

Allow initial source value in the transformation and planning function

Unit 4: Quantity Conversion in Transformation Rule using InfoObject as a source of Conversion Factor

Example: Records from the source system have UoM Kilograms. Requirement is to convert these records into US Pounds. Formula: $\text{kg} \times 2.2 = 1 \text{ US Pound}$

This option is only available while loading data. KeyFigure used as a source of Conversion Factor should exist in the InfoProvider as well. Value of this KeyFigure in the data record is taken as the conversion factor.

Create a new Quantity Conversion Type and select the radio button Conversion Factor from InfoObject. In the box against it type in the name of KeyFigure which holds the conversion factor value. In this example I have used KeyFigure ZCONV_FCT and it should have value 2.2 for all records (assuming all records are in KG) for this conversion to be accurate.

Quantity Conversion Type Edit

Object Directory Entry

Conversion Type: ZCASE3

Long Description: Case3: using InfoObject as source of Conversion Factor

Short Description: Case3

Hdr data | Conversion Factors | UoM

Dynamic Determination of Conversion Factor

Reference InfoObject

Conversion Factor from InfoObject ZCONV_FCT

On the UoM tab I've selected Source Unit of Measure from DataRecord and Fixed Target Unit of Measure as LB.

Source Unit of Measure

Unit of Measure from DataRecord

Fixed Unit of Measure

InfoObject for Determining Unit of Measure

Associated Quantity Attribute

Source Quantity from Variable

Target Unit of Measure

Selection of Unit of Measure during Conv.

Fixed Unit of Measure LB US pound

Figure below shows the rule details for the KeyFigure which should have the values in US Pounds (in this case 0QUANTITY).

Rule Details

Description:

Target InfoObjct: Quantity

Rule Type:

Aggregation:

Unit

Target Unit: Unit of measure

Unit:

Conversion Type:

Source Unit:

Source Fields of Rule:

Field	Long Description	Type	Ln...	Conv...	IOAssgnmnt	Long Description
/BIC/ZCONV_FCT	Conversion Factor	DEC	17		ZCONV_FCT	Conversion Factor
BASE_UOM		UNIT	3	CUNIT	0BASE_UOM	Base Unit of Mea...
QUANT_B	Qty in Base UoM	QUAN	17		0QUANT_B	Quantity in base ...

Target Fields of Rule:

InfoObject	I...	Long Description	Type	Ln...	Conv....
0QUANTITY	<input type="text" value="0QUANTITY"/>	Quantity	QUAN	9	
0UNIT	<input type="text" value="0UNIT"/>	Unit of measure	UNIT	3	CUNIT

Save and activate the Transformation Rules. Load data in the InfoCube. Screen shots below show the source data in PSA and the target (converted) data in report.

PSA Maintenance

Data records to be edited

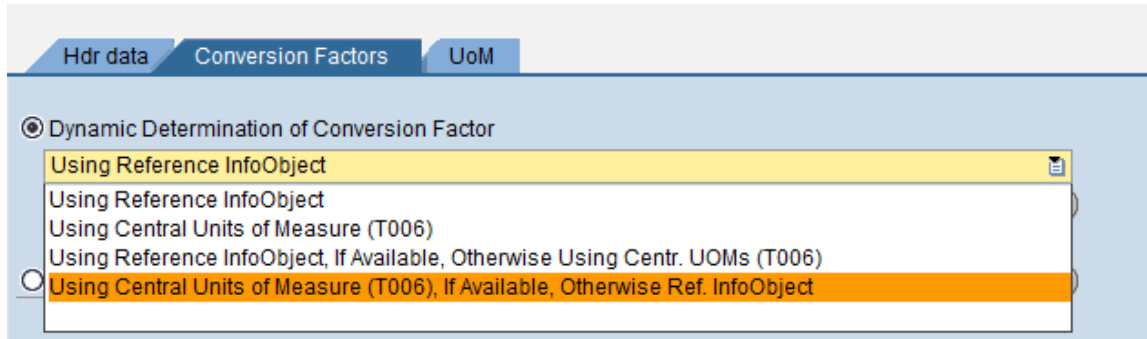
Status	DataPacket	Data Rec.	Customer	Material	Company co	Distributi	Cal. year	Qty in Bas	BASE_UOM	Conversion
	1	1	0000001136	M01	10	1	200810	1	KG	2.200
	1	2	0000001136	M01	10	1	200811	5	KG	2.200
	1	3	0000001136	M02	10	1	200810	10	KG	2.200
	1	4	0000001136	M02	10	1	200811	1	KG	2.200
	1	5	0000001136	M03	10	1	200810	5	KG	2.200
	1	6	0000001136	M03	10	1	200811	10	KG	2.200

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Rows
 Customer
 Material
Columns
 Key Figures
Free Characteristics

Customer	Material	Qty in Source UoM	Quantity in Conv. Uom
Star Supermarkets	Apple	6.0000 KG	13.2000 LB
	Orange	11.0000 KG	24.2000 LB
	Banana	15.0000 KG	33.0000 LB
	Result	32.0000 KG	70.4000 LB
Overall Result		32.0000 KG	70.4000 LB

Unit 4: Other options for Conversion Factors



Using Reference InfoObject, If Available, Otherwise Using Centr. UOMs (T006):

System first checks the Quantity DSO for conversion factors. If found then systems uses them to perform the conversion. If not then it looks Central Units of Measure table for the conversion factors.

Using Central Units of Measure (T006), If Available, Otherwise Ref. InfoObject:

In this case system first checks the Central Units of Measure table for the conversion factors. If found then conversions are performed using them. If not found then systems checks the quantity DSO for the conversion factors.

Unit 5: SAP's Recommendation for choosing the Option for Conversion Factors

Selection of wrong option for Conversion Factors can have adverse impact on performance. Therefore, it is essential to select the best option. This decision should be made based on the data set.

1. For performing conversions between units of same dimensions (kilogram to US Pounds) option "Using Central Units of Measure (T006)" is the best option.
2. For performing InfoObject specific conversions (ex: material-specific conversions) between units that do not belong to the same dimension, option "Using a reference InfoObject" is most suitable.
3. For the other two options system will access the second table if the conversion factor is not found in the first one. So the selection should be made strictly based on records in datasets. If for the 80% of the records, source and target unit belong to the same dimension then selecting the option "Using Central Units of Measure (T006), If Available, Otherwise Ref. InfoObject" makes more sense as the quantity DSO will only be accessed for remaining 20% records.

Unit 6: Quantity Conversion in the Business Explorer

Conversion Types (same/different) can be specified for each individual KeyFigures or structure elements in the query definition. There are 3 different options to specify Target UoM while performing Quantity Conversion in the query:

1. Using Fixed Target UoM
2. Specifying Target UoM in the query definition
3. Specifying Target UoM using a variable

Option 1: Using Fixed Target UoM

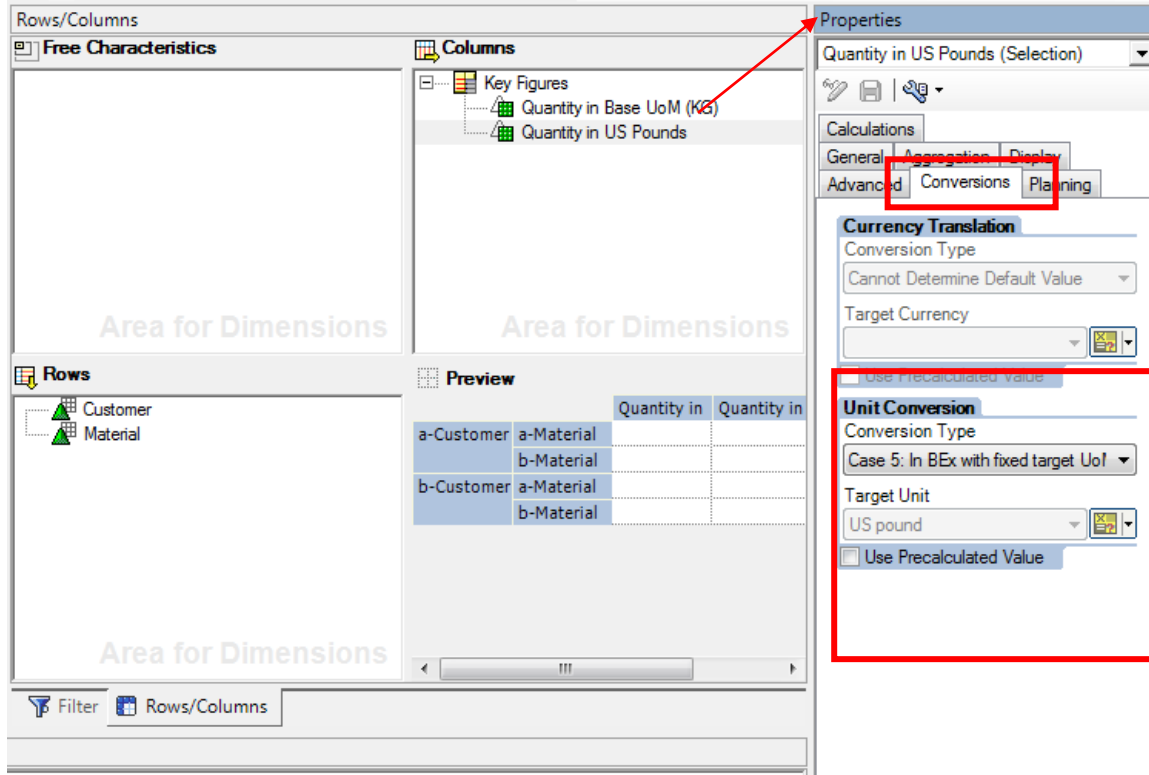
Define a Quantity Conversion Type where in the Target Unit of Measure radio button Fixed Unit of Measure is selected. Enter the corresponding unit in the box against it. For this example we will be converting to Kilograms to US Pounds.

Quantity Conversion Type Edit

Object Directory Entry	
Conversion Type	ZCASE5_1
Long Description	Case 5: In BEx with fixed target UoM
Short Description	Case 5

Hdr data	Conversion Factors	UoM
Source Unit of Measure		
<input checked="" type="radio"/>	Unit of Measure from DataRecord	
<input type="radio"/>	Fixed Unit of Measure	<input type="text" value=""/>
<input type="radio"/>	InfoObject for Determining Unit of Measure	<input type="text" value=""/>
	Associated Quantity Attribute	<input type="text" value=""/>
<input type="radio"/>	Source Quantity from Variable	<input type="text" value=""/>
Target Unit of Measure		
<input type="radio"/>	Selection of Unit of Measure during Conv.	
<input checked="" type="radio"/>	Fixed Unit of Measure	<input type="text" value="LB"/>
<input type="radio"/>	Target Quantity from Variable	<input type="text" value=""/>
<input type="radio"/>	InfoObject for Determining Unit of Measure	<input type="text" value=""/>


In the query definition for the KeyFigure/Structure Selection under properties select Conversions tab. In the dropdown for Conversion Type select the one defined in step above. You will notice that Target Unit changes to US Pound and this field is gray (cannot be changed) as in Conversion Type Target UoM is defined as fixed.

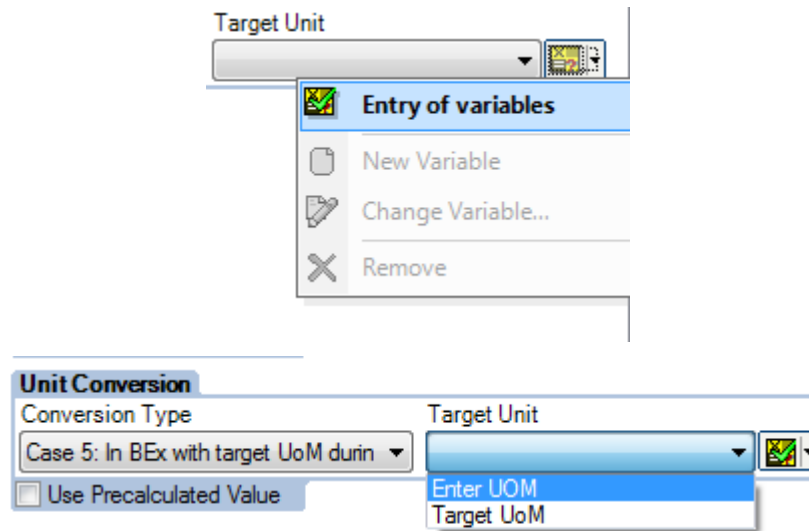


Save and execute the query.

Save View | Bookmark | Variable Screen | Exceptions and Conditions | Comments | Export to Excel | Export to CSV

Customer	Material	Quantity in Base UoM (KG)	Quantity in US Pounds
Star Supermarkets	Apple	6.0000 KG	13.2280 LB
	Orange	11.0000 KG	24.2510 LB
	Banana	15.0000 KG	33.0690 LB
	Result	32.0000 KG	70.5480 LB
Overall Result		32.0000 KG	70.5480 LB

In this option Target Unit in the query can also be entered from a variable. To do so click the dropdown next to  in Target Unit. Select the option Entry of Variables and from the drop down then select the required variable.








Save and execute the query. *For steps to define variable refer Option 3 below.*

Option 2: Specifying Target UoM in the query definition

In the definition of Quantity Conversion Type select the option "Selection of Unit of Measure during Conv."

Quantity Conversion Type Edit


     Object Directory Entry


Conversion Type	ZCASE5_2
Long Description	Case 5: In BEx with target UoM during Conv
Short Description	Case 5


Hdr data **Conversion Factors** **UoM**


Source Unit of Measure

Unit of Measure from DataRecord

Fixed Unit of Measure 


InfoObject for Determining Unit of Measure 


 Associated Quantity Attribute 

Source Quantity from Variable 

Target Unit of Measure

Selection of Unit of Measure during Conv.

Fixed Unit of Measure 

Target Quantity from Variable 

In the query definition for the KeyFigure/Structure Selection under properties select Conversions tab. In the dropdown for Conversion Type select the one defined in step above. You will notice that Target Unit remains blank after selection of this conversion type.

The screenshot displays the SAP Business Intelligence query definition interface. The main area is divided into a Rows/Columns grid and a Properties panel.

Rows/Columns Grid:

- Free Characteristics:** Area for Dimensions.
- Columns:** Key Figures
 - Quantity in Base UoM (KG)
 - Quantity in US Pounds
- Rows:** Dimensions
 - Customer
 - Material
- Preview:**

		Quantity in	Quantity in
a-Customer	a-Material		
	b-Material		
b-Customer	a-Material		
	b-Material		

Properties Panel:

- Quantity in US Pounds (Selection)** (Dropdown)
- Calculations:** General, Aggregation, Display, Advanced, Conversions, Planning
- Currency Translation:**
 - Conversion Type: Cannot Determine Default Value (Dropdown)
 - Target Currency: (Dropdown)
 - Use Precalculated Value
- Unit Conversion:**
 - Conversion Type: Case 5: In BEx with target UoM duri (Dropdown)
 - Target Unit: (Dropdown)
 - Use Precalculated Value

Next in the Target Unit Box select US Pound from the dropdown. Save and execute the query.

The screenshot shows the SAP Business Intelligence interface. On the right, the 'Properties' pane is open to the 'Unit Conversion' section. The 'Conversion Type' is set to 'Case 5: In BEx with ta' and the 'Target Unit' is set to 'US pound'. A dropdown menu is open, showing various units, with 'US pound' selected. The main view shows a preview table with columns for 'Quantity in' and 'Quantity in'.

Unit Conversion

Conversion Type: Case 5: In BEx with ta | Target Unit: US pound

Use Precalculated Value

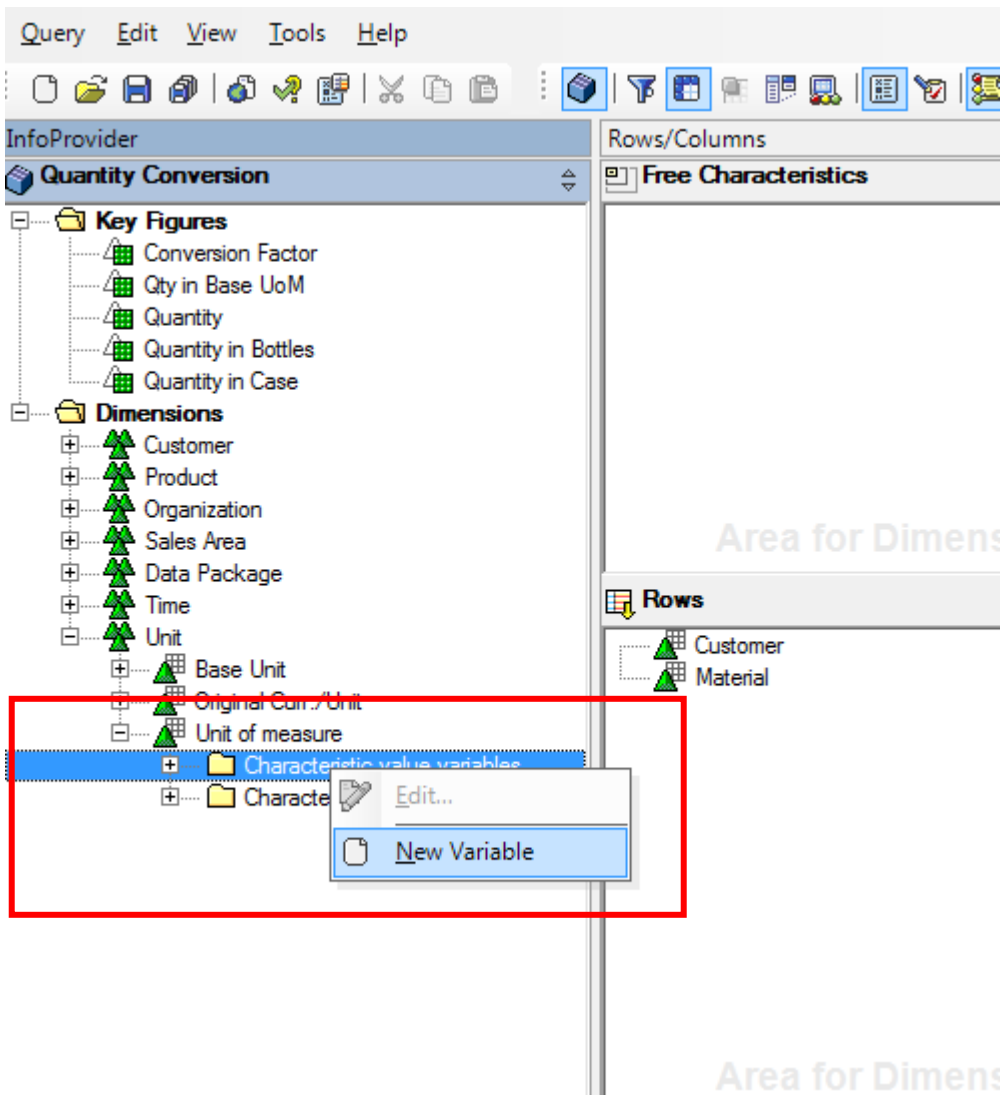
Save View | Bookmark | Variable Screen | Exceptions and Conditions | Comments | Export to Excel | Export to CSV

Customer	Material	Quantity in Base UoM (KG)	Quantity in US Pounds
Star Supermarkets	Apple	6.0000 KG	13.2280 LB
	Orange	11.0000 KG	24.2510 LB
	Banana	15.0000 KG	33.0690 LB
	Result	32.0000 KG	70.5480 LB
Overall Result		32.0000 KG	70.5480 LB

Option 3: Specifying Target UoM using a variable

First define a variable on the Unit InfoObject (0UNIT). This can be done by creating a new query or opening a query for an InfoProvider which contains this InfoObject.

Select the option of New Variable from the context menu as shown below:



Define the new variable as per the requirement. *Detailed steps for defining a variable can be found at http://help.sap.com/saphelp_nw70/helpdata/EN/ac/789b3c4d4d8d15e1000000a114084/frameset.htm*

The screenshot shows the SAP BI Quantity Conversion configuration interface. The 'Properties' tab is highlighted with a red box, showing the 'Global Settings' section. The 'Type of Variable' is set to 'Characteristic Value' and the 'Reference Characteristic' is set to 'Unit of measure'. The 'Technical Name' is 'ZUOM_1'. The 'Description' is 'Enter UOM'. The 'Unit of measure' is also set to 'Enter UOM'.

In the Quantity Conversion Type select the option Target Quantity from Variable and type in/select the variable created in step above.

Quantity Conversion Type Edit

Object Directory Entry

Conversion Type: ZCASE5_3

Long Description: Case 5: In BEx with target UoM from Variable

Short Description: Case 5

Hdr data | Conversion Factors | UoM

Source Unit of Measure

Unit of Measure from DataRecord

Fixed Unit of Measure

InfoObject for Determining Unit of Measure

Associated Quantity Attribute

Source Quantity from Variable

Target Unit of Measure

Selection of Unit of Measure during Conv.

Fixed Unit of Measure

Target Quantity from Variable

ZUOM_1 Enter UOM

In the query definition for the KeyFigure/Structure Selection under properties select Conversions tab. In the dropdown for Conversion Type select the one defined in step above. You will notice that Target Unit box changes to "From Variable" and cannot be changed as variable for the conversion has been fixed in conversion rule.

General Aggregation Display Advanced **Conversions** Planning Calculations

Currency Translation

Conversion Type
Cannot Determine Default Value

Target Currency

Use Precalculated Value

Unit Conversion

Conversion Type
Case 5: In BEx with target UoM from

Target Unit
From Variable

Use Precalculated Value

Save and execute the query.

Variables for Ad Hoc Report

Enter UOM LB

Execute Check

Save View Bookmark Variable Screen Exceptions and Conditions Comments Export to Excel Export to CSV

Customer	Material	Quantity in Base UoM (KG)	Quantity in US Pounds
Star Supermarkets	Apple	6.0000 KG	13.2280 LB
	Orange	11.0000 KG	24.2510 LB
	Banana	15.0000 KG	33.0690 LB
	Result	32.0000 KG	70.5480 LB
Overall Result		32.0000 KG	70.5480 LB

Rows: Customer, Material
 Columns: Key Figures
 Free Characteristics

Unit 7: Quantity Conversion using Routine

It is not possible to use Conversion Types in few situations. In such cases quantity conversion can be performed using formulas and routines. Few of such cases are:

1. Use of Quantity Conversion Types for DSO is not yet supported. In order to perform quantity conversion for a KeyFigure in DSO routines can be used.
2. Target KeyFigure has a fixed unit of measure but there is no KeyFigure in the source of same type. In case conversion is required to fill the Target KeyFigure, it has to be done using a routine.

Example:

Task is to convert Source Quantity from Kilogram to US Pounds (1 KG = 2.2 LB). Quantity in the source system has fixed UoM Kilogram and only quantity values are send (no unit). This field in the DataSource is a KeyFigure of DataType Number (DEC). In the InfoCube I have added two figures Quantity with variable UoM (reference InfoObject 0UNIT) and Quantity with fixed UoM US Pound.

For KeyFigure with variable UoM we also have to determine the Target UoM. In the Transformation Rule Details select the option "Routine with Unit". When this option is selected in the routine editor an additional parameter UNIT becomes available. Target UoM is determined using value of this parameter. In this example I determine the Target UoM from the Base UoM in the master data of material.

Rule Details

Description: [Empty]

Target InfoObject: 0QUANTITY Quantity

Rule Type: Routine with Unit

Aggregation: Summation

Unit

Target Unit: 0UNIT Unit of measure

Unit: from Routine

Source Fields of Rule:

Field	Long Description	Type	Ln...	Conv...	IOAssgnmnt	Long Description
/BIC/ZQ_SRC	Source Quantity	DEC	17		ZQ_SRC	Source Quantity
MATERIAL	Material	CHAR	18	MATN1	0MATERIAL	Material








Target Fields of Rule:

InfoObject	I...	Long Description	Type	Ln...	Conv....
0QUANTITY		Quantity	QUAN	9	
0UNIT		Unit of measure	UNIT	3	CUNIT

Transfer Values

Click on the  icon next to Rule Type and enter the code here.

Rule Details

```


105  *-- fill table "MONITOR" with values of structure "MONITOR_REC"
106  *- to make monitor entries
107  ... "to cancel the update process
108  * raise exception type CX_RSROUT_ABORT.
109  ... "to skip a record
110  * raise exception type CX_RSROUT_SKIP_RECORD.
111  ... "to clear target fields
112  * raise exception type CX_RSROUT_SKIP_VAL.
113
114  data: uom type /BIO/MMATERIAL-BASE_UOM.
115  data: quan type /BIC/OIZQ_SRC.
116
117  select single BASE_UOM into uom from /BIO/MMATERIAL
118  where MATERIAL = SOURCE_FIELDS_RULE-MATERIAL.
119
120  CALL FUNCTION 'UNIT_CONVERSION_SIMPLE'
121  EXPORTING
122  INPUT = SOURCE_FIELDS_RULE-/BIC/ZQ_SRC
123  UNIT_IN = 'KG'
124  UNIT_OUT = uom
125  IMPORTING
126  OUTPUT = quan.
127
128  RESULT = quan.
129  UNIT = uom.
130
131  *$*$ end of routine - insert your code only before this line *-*
132  ENDMETHOD. "compute OQUANTITY
133  *-----*
134  * Method invert OQUANTITY




```


For KeyFigure with fixed UoM option "Routine with Unit" is not available as it already has a fixed unit. In the Transformation Rule details select the option "Routine" for this KeyFigure and perform the required conversion in the routine.

Rule Details

Description


Target InfoObjct  ZQ_USPND Quantity in US Pounds

Rule Type  Routine  

Aggregation Summation 

Unit


Fixed Target Unit LB US pound






Unit No Conversion 

Source Fields of Rule:






Field	Long Description	Type	Ln...	Conv...	IOAssgnmnt	Long Description
/BIC/ZQ_SRC	Source Quantity	DEC	17		ZQ_SRC	Source Quantity

Target Fields of Rule:

InfoObject	I...	Long Description	Type	Ln...	Conv...
ZQ_USPND		Quantity in US Po...	QUAN	9	

 Transfer Values    

Rule Details

   Pattern Pretty Printer   Routines Info.

```

94      MONITOR_REC      TYPE rsmonitor.
95
96      *$*$ begin of routine - insert your code only below this line
97      ... "insert your code here
98      *-- fill table "MONITOR" with values of structure "MONITOR_REC
99      *- to make monitor entries
100     ... "to cancel the update process
101     * raise exception type CX_RSROUT_ABORT.
102     ... "to skip a record
103     * raise exception type CX_RSROUT_SKIP_RECORD.
104     ... "to clear target fields
105     * raise exception type CX_RSROUT_SKIP_VAL.
106
107     RESULT = SOURCE_FIELDS_RULE-/BIC/ZQ_SRC * '2.2.'.
108
109     *$*$ end of routine - insert your code only before this line

```

Save and activate the transformation rules. Load the data in to InfoCube. Screen shots below show the source data in PSA and the converted data (using rules above) in the InfoCube.

PSA Maintenance

Status	DataPacket	Data Rec.	Customer	Material	Cal. year	Source Qua
■	1	1	0000001136	M01	200810	1.000
■	1	2	0000001136	M01	200811	5.000
■	1	3	0000001136	M02	200810	10.000
■	1	4	0000001136	M02	200811	1.000
■	1	5	0000001136	M03	200810	5.000
■	1	6	0000001136	M03	200811	7.000

"ZC_QCONVR", List output

OCUSTOMER	Material	OCALMONTH	OUNIT	QQUANTITY	ZQ_USP...
0000001136	M01	200810	LB	2.205	2.200
0000001136	M02	200810	LB	22.046	22.000
0000001136	M03	200810	LB	11.023	11.000
0000001136	M01	200811	LB	11.023	11.000
0000001136	M02	200811	LB	2.205	2.200
0000001136	M03	200811	LB	15.432	15.400
			LB	63.934	63.800

KF with variable UoM ref IO OUNIT

KF with fixed UoM 'LB'

Note: The decimal difference between two KeyFigures is because I have used rounded value of 2.2 for conversion and in the system for LB rounding has been defined to 3 decimal places.

Unit 8: Options for specifying the Source Unit of Measure

While defining a Quantity Conversion Type following options are available for determining Source Unit of Measure:

1. Unit of Measure from DataRecord
2. Fixed Unit of Measure
3. InfoObject for determining Unit of Measure
4. Source Quantity from variable

When converting quantities in the Business Explorer, the source unit of measure is always determined from the data record.

During the data load process the source unit of measure can be determined either from the data record or using a specified characteristic that bears master data.

You can use a fixed source unit of measure in planning functions. Data records are converted that have the same unit key as the source unit of measure.

In reporting, you can use a source unit of measure from a variable. The variables that have been defined for InfoObject 0UNIT are used.

Related Content

http://help.sap.com/saphelp_nw70/helpdata/EN/27/b65c42b4e05542e10000000a1550b0/frameset.htm

For more information, visit the [Business Intelligence homepage](#).

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