

# Understanding BW Non Cumulative Concept as Applicable in Inventory Management Data Model



## Applies to:

SAP R/3, SAP ECC 6.0 and SAP BI NetWeaver 2004s. For more information, visit the [Business Intelligence Homepage](#).

## Summary

The concept of Non Cumulative is complicated. Tried my best to explain the same with suitable examples. This page will help us to give understanding of OLAP Processing for Non Cumulative.

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## Definition

Non-cumulative values are those key figures that are measured in relation to a period of time; that is to say they cannot be meaningfully cumulated over time. Non-cumulative values are summarized over time using so-called exception aggregation.

In RSD1 you can see that 'normal' key figures are assigned to such a non-cumulative key figure which describes the Inflow and Outflow (or the value change (delta)). In the query the ncum key figure is then calculated (for the requested days) by taking the data given by the key figures Inflow and Outflow.

From a technical point of view the handling of Non Cumulative key figures is very different in comparison to cumulative key figures. The values are only calculated during query runtime and not stored at all in the fact tables. That's why you can't find this key figure in the transaction LISTCUBE. The technical infoobject ORECORDTP (in the package dimension) was introduced only for Non Cumulative.

## Features of Non-Cumulative:

Some common questions:

1. How so we calculate Stock Values?

Stock values are calculated by using Current Stock values backward using the movements.

Only those Stock Values get calculated which are coming under Validity Period. If Stock Values are required outside from Validity Period then those values are displayed in Bracket.

2. How an Infocube become Non Cumulative Cube?

When a Non Cumulative Key Figure becomes part of an Infocube then that Infocube become Non Cumulative Cube.

3. What are the different types of Non Cumulative Key Figure?

There are two types of Non Cumulative Key Figures:

- Delta Movement Key Figure.
- Separate Inflow and Outflow Key Figure.

## Key Concept:

Validity tables:

A Validity table defines the time interval for which stock values are defined.

For InfoCubes with non-cum. Key Figures you need to maintain a Validity table when creating the Infocube. This table specifies the time interval for which the Non-Cumulative are valid for a specific characteristic combination. You can find the validity table in Ta: SE16 - /BI0/Lxxxxxxx (xxxx being the name of the Infocube). The Validity table is automatically filled during the upload.

## Working of Non Cumulative (Explaining with an Example):

There is a need to calculate total stock of ABC Company for a given week:

Initially ABC-plant 1000 had 2000 pieces of sweets in stock (Initial stock value).

	Monday+Tuesday+Wednesday+Thursday+Friday										
Stock inward	200	+	250	+	100	+	150	+	200	=	900
Deliveries outward	100	+	150	+	50	+	150	+	50	=	500

Non Cumulative stock is 2400 pieces of sweets.

By above simple example, we can understand that Non Cumulative is calculated as

**Initial Stock + Stock Inward – Deliveries Outward**

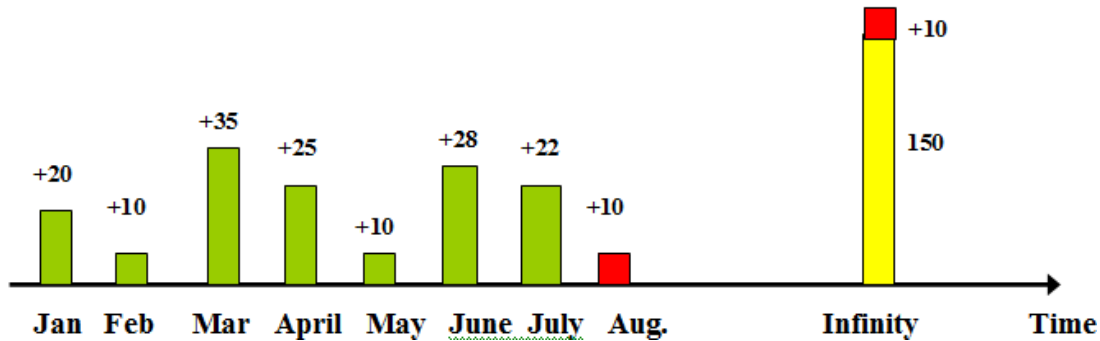
### Query Execution:

When query is getting execute on Non cumulative key figures then OLAP processor following this formula:

$$\text{Value (t)} = \sum_{\substack{\text{Requid} = 0 \text{ AND} \\ \text{Recordtp} = 1 \text{ AND} \\ \text{ref Time} = \infty}} \text{ Tuple} + \sum_{\text{Requid} > 0} \text{ Tuple} - \sum_{\text{Ref time} > t} \text{ Tuple}$$

{Value at infinity}
{Deltas for backwards Calculations}

Query calculates Stock for Specific Period by using Inflow and Outflow Movements and Marker Point. It begins its calculation by using Current Stock (Marker) + Total delta of all Uncompressed Requests and then it calculates "BACKWARDS" the Stock Value for a certain day.



(Green = Compressed Request / Red = Uncompressed Request/ Yellow = Initial Stock).

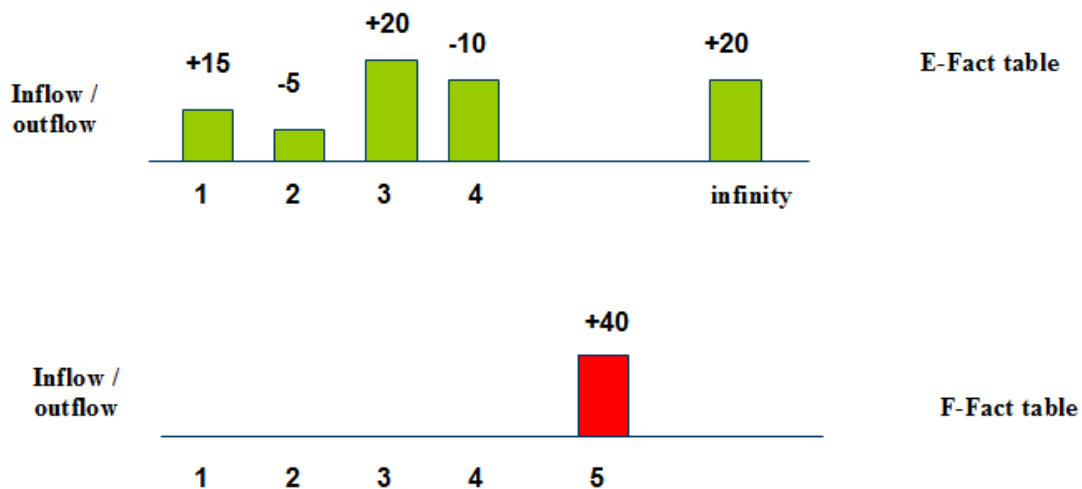
In the above example, we can see Reference Point as 160.

Let's calculate the Stock Value for JUNE. Now here Stock Valuation works on base of above Formula:

**Current Stock (Marker) 150 + Uncompressed Request 10 – Stock Value for Aug and July (10 + 22).**

So Stock Value for June is 128.

One more example to illustrate in a simple way:



When Query gets executed for Stock Value it will follow same formula.

In Simple words:

## Value at infinity (E Fact table) + Value of not compressed request in F Fact table

- Value (time cube > time query)

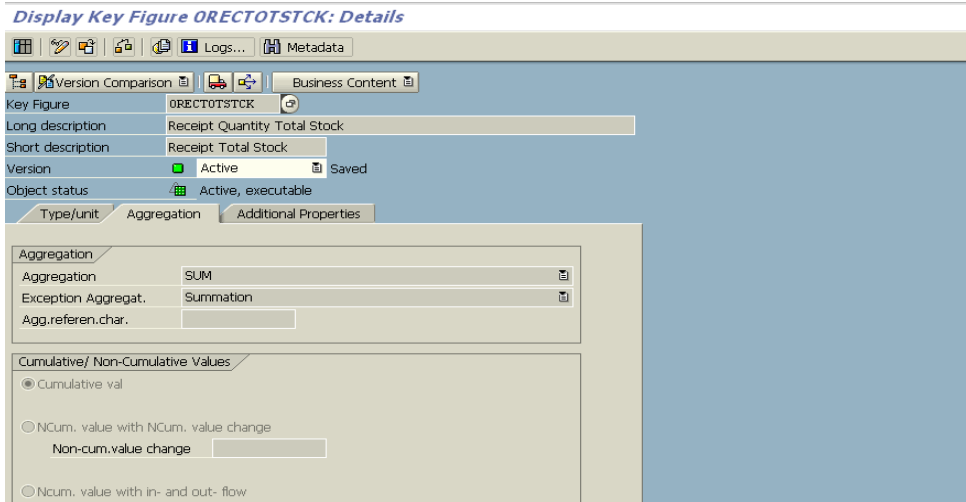
Here scenario is find Stock Value for Feb (2):

$$20+40 - (40+-10+20) = 10.$$

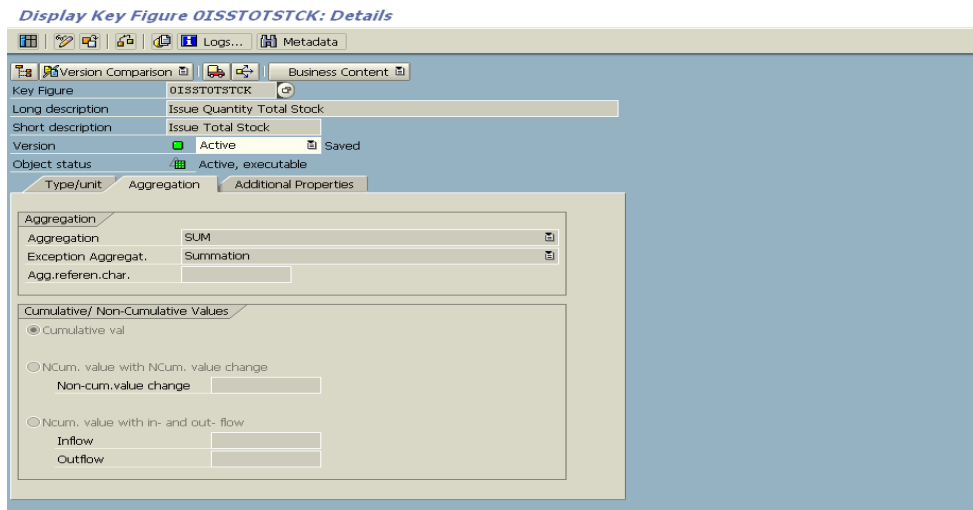
## Important Key Figures:

There are 3 important key figures for non cumulative.

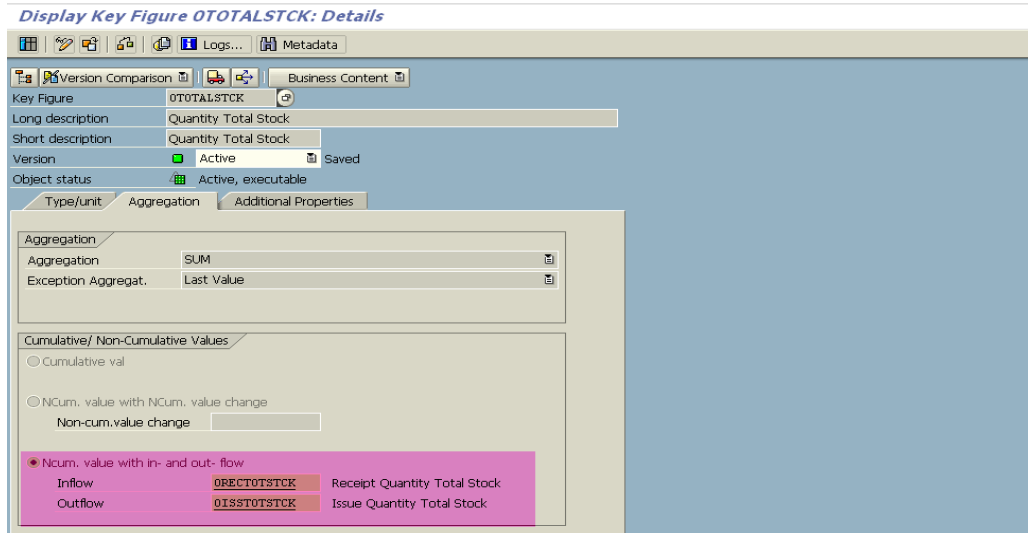
- 1) Inflow (0RECTOTSTCK)



- 2) Outflow (0ISSTOTSTCK)



### 3) Total Stock (0TOTALSTCK)



These 3 Key Figures are very important. Non Cumulative values get calculate by these 3 Key Figures.

$$\text{Total Stock (0TOTALSTCK)} = \text{Initial Stock} + \text{Inflow (0RECTOTSTCK)} - \text{Outflow (0ISSTOTSTCK)}.$$

### Content on 0IC\_C03 cube via Listcube using RECORDTYPE: 1

When the RecordType is given the value 1 it will give the **Marker Update** i.e. 31.12.9999.

Following displays the difference of displaying the content on 0IC\_C03 cube using RECORDTYPE = 1 and RECORDTYPE=0.

Case 1: When RECORDTYPE is 1 in listcube

"0IC\_C03", List output

Plant	Record ty...	OSTOR_LOC	DMATERIAL	Stock type	Calendar Day	0RECTOTSTCK	0RECTRANSST	0RECVLSTCK	0RECVS_VAL	0VENCONCON	Country	DDISTR_CHA	Reg...	OS
3200	1	0001	M311	A	31.12.9999	300	0	300	0,00	0,00				
3200	1	0001	M312	A	31.12.9999	300	0	300	0,00	0,00				
3200	1		M311		31.12.9999	0	0	0	6.000,00	0,00				
3200	1		M312		31.12.9999	0	0	0	16.500,00	0,00				
						600			22.500,00					

Case 2: When RECORDTYPE is 0 in listcube

"0IC\_C03", List output

Plant	Record ty...	OSTOR_LO...	Material	ORECTOTSTCK	...TRANSST	...VALST...	ORECVS_VAL	Stock type	Calendar Day	OCALMON...	OCALWEEK	OCALYEAR	Vendor	DCHWID	OREQUID	Base U...	...CURRCY
3200		0001	M311	100	0	100	0,00	A	13.10.2010	201010	201041	2010				ST	USD
3200	1	0001	M311	300	0	300	0,00	A	31.12.9999	000000	000000					ST	USD
3200		0001	M311	300	0	300	0,00	A	08.09.2000	200009	200036	2000				ST	USD
3200	1	0001	M312	300	0	300	0,00	A	31.12.9999	000000	000000					ST	USD
3200		0001	M312	100	0	100	0,00	A	13.10.2010	201010	201041	2010				ST	USD
3200		0001	M312	300	0	300	0,00	A	08.09.2000	200009	200036	2000				ST	USD
3200			M311	0	0	0	2.000,00		13.10.2010	201010	201041	2010				ST	USD
3200	1		M311	0	0	0	6.000,00		31.12.9999	000000	000000					ST	USD
3200			M311	0	0	0	6.000,00		08.09.2000	200009	200036	2000				ST	USD
3200			M312	0	0	0	5.500,00		13.10.2010	201010	201041	2010				ST	USD
3200	1		M312	0	0	0	16.500,00		31.12.9999	000000	000000					ST	USD
3200			M312	0	0	0	16.500,00		08.09.2000	200009	200036	2000				ST	USD

The Marker Update (31.12.9999) is not displayed when the RECORDTYPE value is '0'.

Analyzing the query 0IC\_C03/0IC\_C03\_Q0030

Execute the Query 0IC\_C03/0IC\_C03\_Q0030 with these data's:

"0IC\_C03", List output

Plant	Record ty...	OSTOR_LO...	MATERIAL	Stock type	Calendar Day	z	ORECTOTSTCK	ORECTRANSST	ORECVLSTCK	z	ORECVS_VAL	OVENCONCON	Country	DDISTR_CHA	Regi...	OS
3200	1	0001	M311	A	31.12.9999		300	0	300		0,00	0,00				
3200	1	0001	M312	A	31.12.9999		300	0	300		0,00	0,00				
3200	1		M311		31.12.9999		0	0	0		6.000,00	0,00				
3200	1		M312		31.12.9999		0	0	0		16.500,00	0,00				
							600				22.500,00					

Putting these value's in Variable:

Calendar year month = 10.2010

Material = M311 & M312

Plant = 3200

**Variables for Ad Hoc Report**

Calendar year / week: [ ] To [ ]

Calendar year/month (\*): 10.2010 [ ] OCT 2010 To 10.2010 [ ] OCT 2010

Material (Selection Options, Optional):  
 = [ M311 ] [ M311 ] [ Include ]  
 = [ M312 ] [ M312 ] [ Include ] [ Insert Row ]

Plant (Single Value, Required) (\*): 3200 [ ] 3200

Date: [ ] To [ ]

[ Execute ] [ Check ]

The Resultset:

**BEx Ad Hoc Analysis**

Data Analysis | Graphical display | Information | Information Broadcasting

Stock Overview: Materials Last Data Update: 12.01.2011 21:38:53

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

Material	Quantity Total Stock
M311	300 PC
M312	300 PC
<b>Overall Result</b>	<b>600 PC</b>

Rows: Material  
 Columns: Key Figures  
 Free Characteristics: Calendar Day, Calendar Year/Month, Calendar Year/Week, Plant



## Technical Side of Non Cumulative:

Function Module RSDRC\_CUBE\_DATA\_GET\_OLAP

This Function module handling data from Non Cumulative cube to Queries.

If we see its structure: <l\_sx\_rr>-RTIME -> INTTYP:

It contains these values:

D – Only movements

F – First day in interval

L – Last day in interval

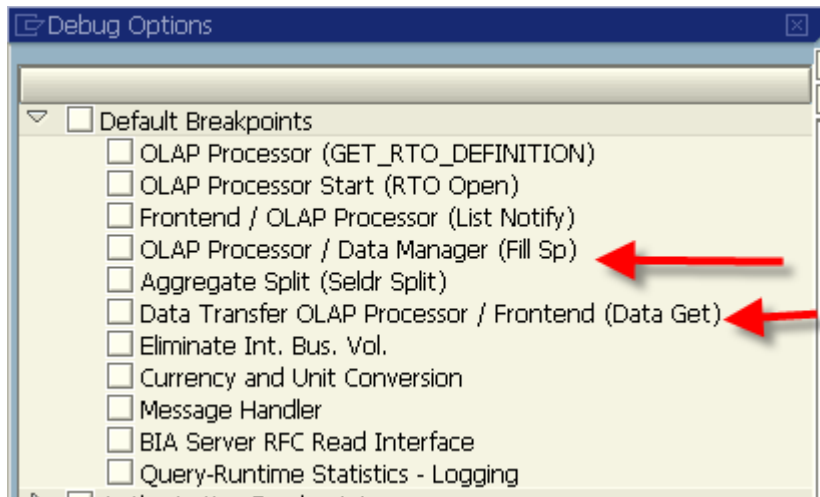
'\*' - every day in interval

Let's take example where we are facing issue with incorrect data coming in non cumulative query:

Let's start with Debugging stuff. We need to analysis 2 parts:

- Data Manager part
- Olap Processor part

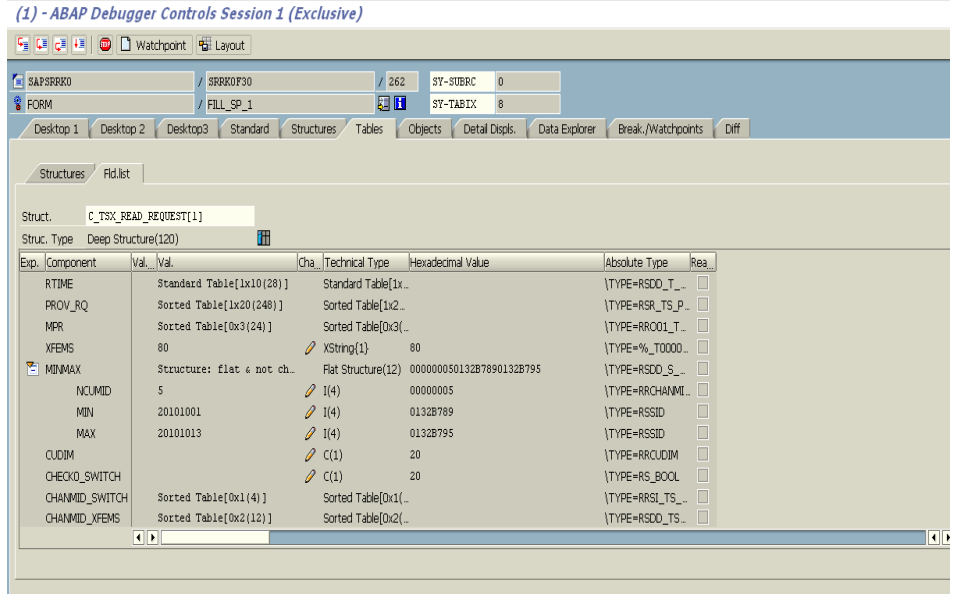
Go to RSRT. Select option Execute+Debug option. It will open following screen:







Select **MINMAX**. It gives more detail information about cube:



## **Related Content**

[Non Cumulative Key Figures](#)

[Handling Inventory Scenario](#)

[Using Non Cumulative Key Figures](#)

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