

# Extended Safety Stock Planning in CTM



## Applies to:

SAP APO – Supply Network Planning. For more information, visit the [Supply Chain Management homepage](#).

## Summary

Objective of this white paper is to demonstrate the configuration steps for 'Extended Safety Stock' functionality in APO SNP when using CTM for planning. This functionality enables business to generate safety stock based on forecast demand to ensure higher levels of stock during peak demand and lower level when demand is low and stable. The standard method of safety stock (For ex:SB) generates a fixed level of safety stock, irrespective of the forecast demand, as maintained in Product master which the SNP planning engine aims to fulfill.

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## Author Bio

The author is a senior SAP APO consultant in Wipro Technologies with over 7 years of industry experience. He has good expertise in the areas of APO DP, SNP and GATP. He also has a background in R/3 Sales & Distribution and domain experience in the field of Sales & Marketing.

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## Introduction

It is possible to use one of the Extended Safety Stock methods viz: **AT**, **AS**, **BT** or **BS** which generate the safety stock based on input parameters such as forecast demand and forecast errors. The four extended safety stock methods differ based on the type of service level (Alpha or Beta service types) and stockholding method (Reorder Cycle or Reorder Point methods). The algorithms use the forecast demand as the basis and note the forecast errors between actual & planned demand to generate the safety stock accordingly. If the forecast error is more, higher level of safety stocks are generated to account for the uncertainty. These algorithms also take into account the service levels which it has to achieve, as specified by the users in master data settings, for generating the safety stock levels. The SAP documents given in the reference section explain these methods in greater detail and this need to be understood to decide which method is applicable for a given product.

## Pre Requisites

From SCM 4.0 onwards, the standard SNP planning books / planning areas (and their copies) only support the following safety stock methods: **SB**, **SZ** and **SM**. All these safety stock methods derive their values from product master. In case of Extended Safety Stock methods, the calculated safety stock is stored in a time-series keyfigure and the CTM needs to read the values from this keyfigure. A special planning area / planning book is made available (9ASNP05 / 9ASNP\_SSP) which supports the Extended Safety Stock functionality.

Hence, in order to implement the Extended Safety Stock functionality the pre-requisite is to create a Planning Area copied from **9ASNP05** and create a planning book based on it. The macros from special planning book 9ASNP\_SSP need to be copied.

## Configuration

Since it is not advisable to change standard SAP planning areas, we may need to create a planning area based on the standard SAP one. The following configuration and master data settings are necessary to set up the Extended Safety Stock Functionality:

### Customizing Changes:

- Create planning area Z\_9ASNP05 as a copy of standard safety stock planning area 9ASNP05.
- Create planning book Z\_9ASNP\_SSP based on above planning area. Copy macros from standard safety stock planning book 9ASNP\_SSP.
- CTM Global changes: Add planning area Z\_9ASNP05 in the 'ATP categories' tab.

*SPRO-> mySAP SCM - Implementation Guide-> Advanced Planning and Optimization-> Supply Chain Planning-> Multilevel Supply & Demand Matching (SDM)-> Capable-to-Match (CTM)-> Define Global Values and Default Values*

### CTM: Global Customizing Settings

The screenshot shows the SAP SPRO configuration for CTM Global Customizing Settings. The 'ATP Categories' tab is selected. The 'Substitute categories for PP/DS with' section is checked. The 'Planning area for SNP categories' field is highlighted with a red circle and contains the value 'Z\_9ASNP05'.

Category	Code	Description
In-house production: Receipts	AI	Planned order (not firmed, unconfirmed)
In-house production: Co-product	AI	Planned order (not firmed, unconfirmed)
In-house production: Depend. demand	AY	Dependent demand
Stock transfer: Receipts	AG	Purchase requisition
Stock transfer: Demand	BH	Stock transport requisition
External procurement: Receipts	AG	Purchase requisition
Product substitution: Receipts	GA	Substitution Order
Product substitution: Demand	GB	Substitution Requirement

Category	Code	Description
In-house production: Receipts	EE	SNP: Planned order
In-house production: Co-product	EM	SNP: Receipt from manuf. of co-products
In-house production: Dep. demand	EL	SNP: Dependent demand
Stock transfer: Receipts	EA	SNP: Purchase requisition
Stock transfer: Demand	EB	SNP: Release for stk transp. requisition
External procurement: Receipts	EA	SNP: Purchase requisition



## Profiles and Master data settings

### CTM Profile Settings:

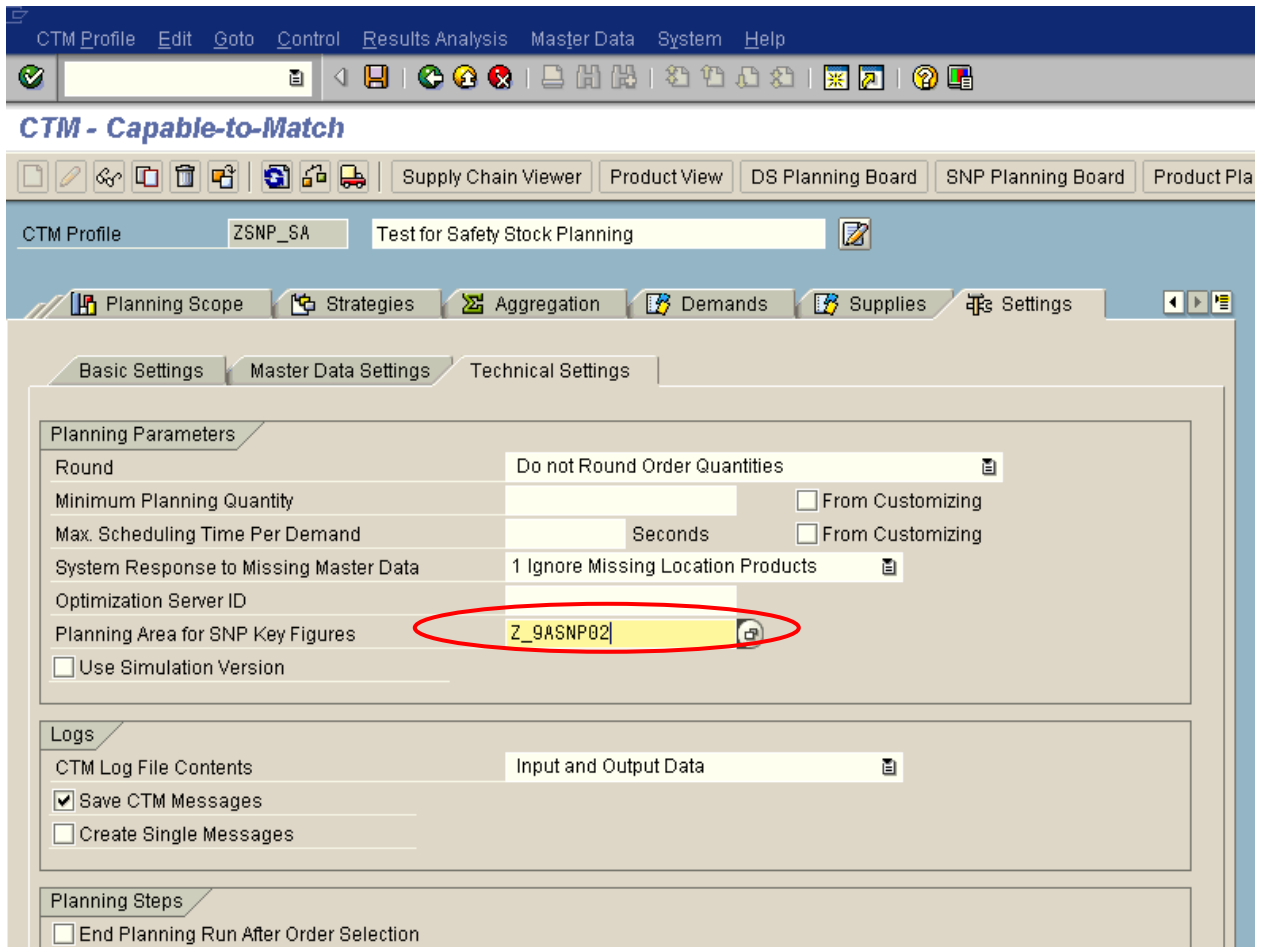
- Select 'Build up Safety Stock' check box in 'Supplies' tab.
- Enter the safety stock planning area created above in the 'Settings' tab.

The screenshot displays the SAP CTM Profile Settings interface for profile ZSNP\_SA. The 'Supplies' tab is active, and the 'Build Up Safety Stock' checkbox is checked and circled in red. Other settings include 'Specify Late Demand Fulfillment' (30 Days), 'Specify Early Demand Fulfillment' (999 Days), 'Note Safety Days' Supply' (unchecked), 'Strategy' (Always consider), and 'Maximum Earliness' (Do not Use). The 'Supply Categorization' section is also visible below.

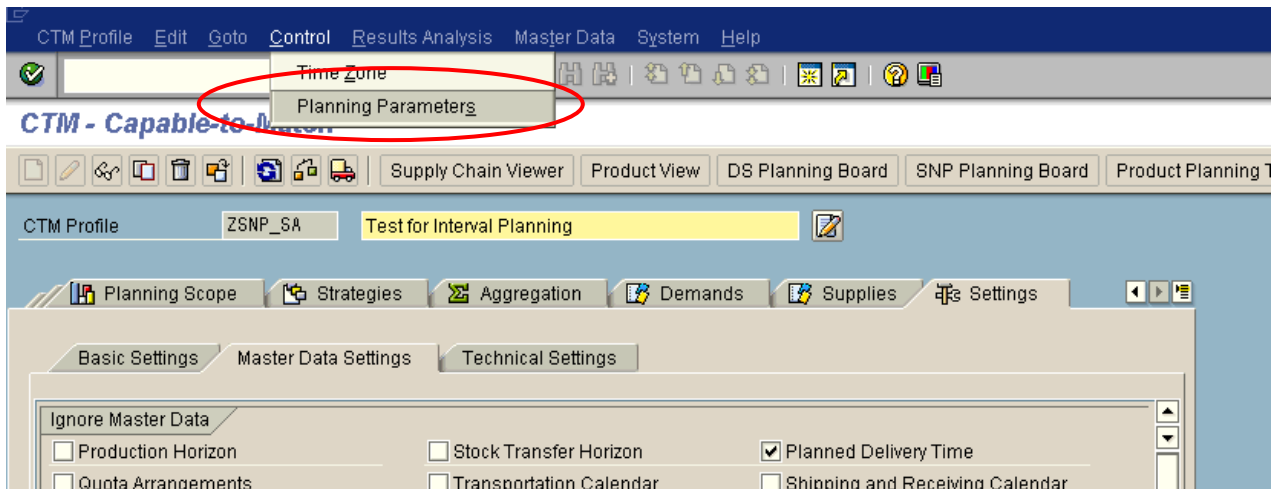
Setting	Value
Build Up Safety Stock	<input checked="" type="checkbox"/>
Specify Late Demand Fulfillment	30 Days
Specify Early Demand Fulfillment	999 Days
Note Safety Days' Supply	<input type="checkbox"/>
Strategy	Always consider
Maximum Earliness	Do not Use

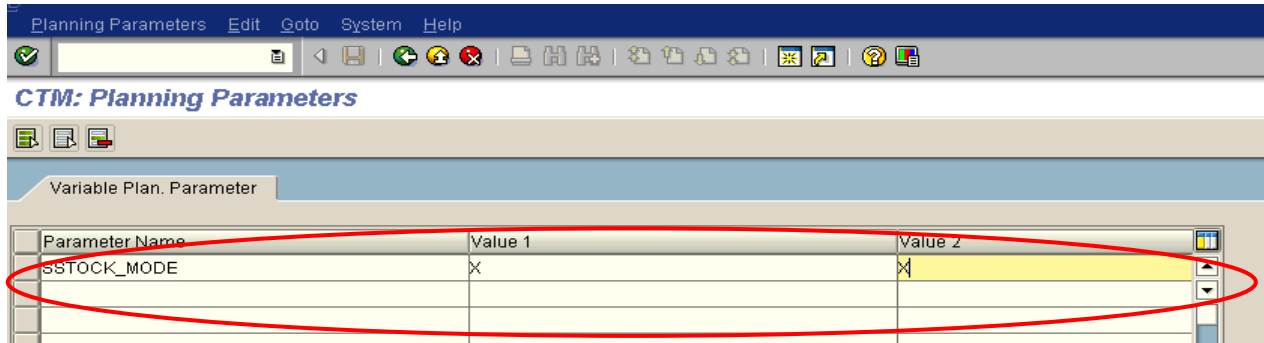
Supply Categorization

Categorization Profile	
Category for New Receipts	
Search Strategy	



- Enter parameter SSTOCK\_MODE and maintain 'X' for value 1 & value 2 in 'Control -> Planning Parameter' of the menu bar.



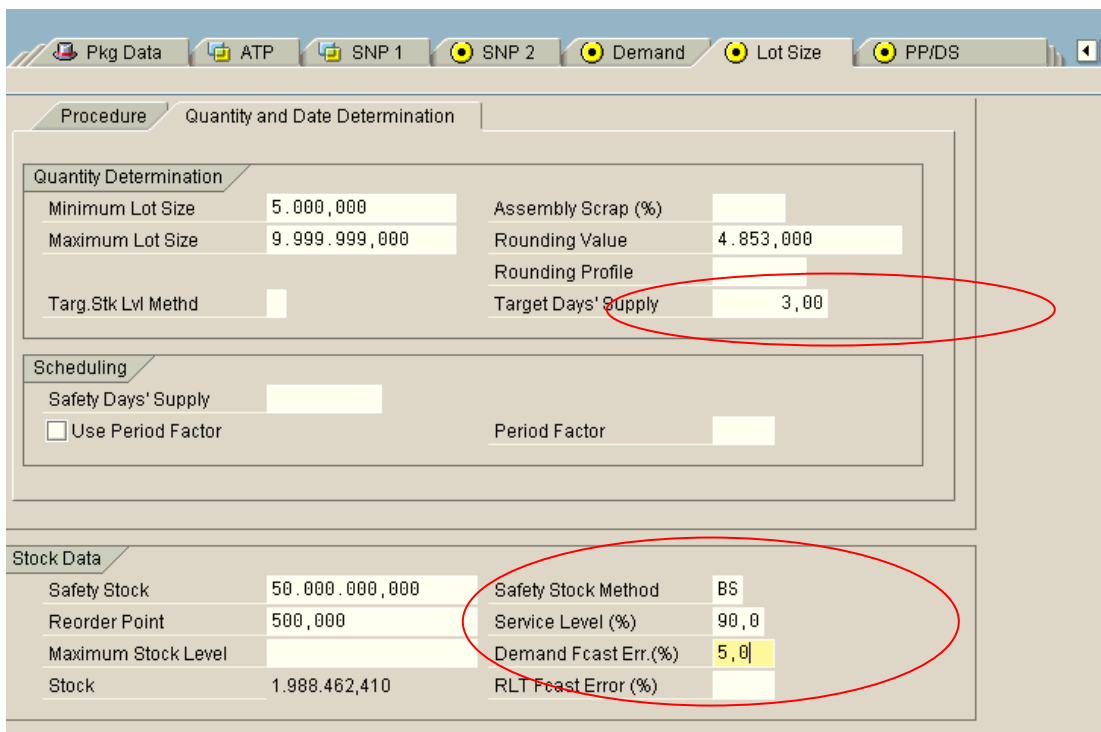


**Product Master Data settings:** (Transaction /n/SAPAPO/MAT1 – Tab ‘Lot Size’)

- Safety Stock Method – BS ( used as an example)
- Service Level - Used by the system to calculate the safety stock. The higher the service level, the higher the system also calculates the safety stock. (Say 90%)
- Demand Fcast Error (%) - Percentage that depicts the mean deviation relationship between the forecast demand and the actual demand at demand forecast level. Higher the error %, greater the uncertainty and hence higher the safety stock generated. (Say 5%).

Note: User can also have the system calculate this error % based on a DP/SNP planning area and key figures representing planned forecast and actual demand. The DP planning area & KFs need to be entered in the safety planning profile. However, this increases the complexity of safety stock calculation.

- RLT Error % - Replenishment Lead Time error. (Not mandatory)
- Target Day's Supply - Number of days for which you want the stock on hand and planned receipts of a product to cover known demands. For a reorder cycle method, this value is interpreted as the reorder cycle.





**Safety Stock Profile Setting:** (Transaction - /SAPAPO/MSDP\_SB): Safety stock generation is based on the forecast demand represented by 9ADFCST keyfigure. Hence, the safety stock generated maps the trend of forecast demand. Similarly, any other key figure (such as dependent demand) can also be used as a basis for safety stock generation, based on business requirements.

### Safety Stock Planning

Display Logs

**Safety Stock Planning**

**Planning Area**

Planning Area: Z\_9ASNP05  
Planning Object Structure: 9AM&L0

**Safety Stock Planning For**

Selection Profile  
 Manual Selection

Planning Version: 000  
Product: 10000000 to  
Location: US01 to

Planning Buckets Profile: Z\_CTM  
 Observe fixed lot size

**Key Figure for Safety Stock**

Safety Stock: 9ASAFETY

**Key Figure for Forecast**

Demand Forecast: 9ADFCST  
Demand Forecast Level (%): 100  
Replen. Ld Time FcstLevel (%): 100

**Uncertainty of Forecast**

## Results

Once the profile and master data settings are completed, the following are executed:

1. The Safety stock planning run is executed. Program /SAPAPO/RSDP\_CALC\_SAFETY\_STOCK can be scheduled for background execution. Safety stock values are generated based on the forecast demand values. The calculated safety stock values are populated in planning books. Results can also be viewed in log.
2. CTM is executed for the CTM profile defined earlier (Program: /SAPAPO/CTMPLRUN)

**Result: CTM planning engine satisfies total demand and then tries to builds up 'Stock on Hand' based on safety stock planned as shown below.**

SNP PLAN	Unit	M 04-2008	M 05-2008	M 06-2008	M 07-2008	M 08-2008
Forecast	KG	200,000,000.000	300,000,000.000	400,000,000.000	500,000,000.000	500,000,000.0
Sales Order	KG					
Demand (Foreca ...	KG	200,000,000.000	300,000,000.000	400,000,000.000	500,000,000.000	500,000,000.0
Distribution Dem ...	KG					
Distribution Dem ...	KG					
DistrDemand (TL ...	KG					
Dependent Dem ...	KG					
Total Demand	KG	200,000,000.000	300,000,000.000	400,000,000.000	500,000,000.000	500,000,000.0
Distribution Rece ...	KG	199,500,000.000	317,800,000.000	416,500,000.000	517,300,000.000	499,800,000.0
Distribution Rece ...	KG					
Distribution Rece ...	KG					
In Transit	KG					
Production (Plan ...	KG					
Production (Conf ...	KG					
Manufacture of C ...	KG					
Total Receipts	KG	199,500,000.000	317,800,000.000	416,500,000.000	517,300,000.000	499,800,000.0
Stock on Hand (F ...	KG	34,139,327.110	51,939,327.110	68,439,327.110	85,739,327.110	85,539,327.1
Stock on Hand	KG	34,139,327.110	51,939,327.110	68,439,327.110	85,739,327.110	85,539,327.1
Supply Shortage	KG					
Safety Stock (Pla ...	KG	34,002,352.688	51,166,723.039	68,004,705.376	85,277,871.731	85,277,871.7
Safety Days' Sup ...	D					
Safety Stock	KG	34,002,352.688	51,166,723.039	68,004,705.376	85,277,871.731	85,277,871.7

1. Safety stock calculated by the 'Safety Stock Planning' run. Safety stock maps the trend of forecast demand as per settings in safety stock profile.

2. CTM creates planned orders such that 'stock on hand' maps the safety stock generated.

## Related Content

[http://help.sap.com/saphelp\\_scm70/helpdata/en/ea/1d9b3979e90e1be10000000a114084/frameset.htm](http://help.sap.com/saphelp_scm70/helpdata/en/ea/1d9b3979e90e1be10000000a114084/frameset.htm)

[http://help.sap.com/saphelp\\_scm70/helpdata/en/be/016e3973ed8c18e10000000a114084/frameset.htm](http://help.sap.com/saphelp_scm70/helpdata/en/be/016e3973ed8c18e10000000a114084/frameset.htm)

[http://help.sap.com/saphelp\\_scm70/helpdata/en/60/a62d41cfea8839e10000000a1550b0/frameset.htm](http://help.sap.com/saphelp_scm70/helpdata/en/60/a62d41cfea8839e10000000a1550b0/frameset.htm)

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