

Supply Network Planning (SNP): Deployment and Transportation Load Builder Scenario and Scenario with Fair Share Rule by Quota Arrangement



Applies to:

Supply Network Planning – Deployment and Transport Load Builder – Concepts and a Scenario with Fair share rule by Quota arrangement

Summary

This document describes the Concepts and Scenario of Supply Network Planning's Deployment and Transport load builder.

After the Goods are manufactured or ready to be supplied to the Distribution centers/Customers/VMI we can use the Deployment and Transport load builder functionalities to supply the finished goods to the Distribution centers/Customer Location and Vendor managed Inventory based on respective demand at the DCs and Locations.

There are various Fair Share Rules and Pull/Push rules that will be used to Deploy.

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Author Bios:

Deepak Aparanji has over 13 years of experience in Supply Chain Management and Project execution. He is a team-oriented Principal Consultant with 9 plus years of experience in SAP (MM, PP, QM, SNP, PS, and APO-DP). He was involved in multiple SAP implementation projects, SAP Upgrades and SAP support projects. He has delivered many projects in Chemical, Steel, Hi-tech, Media industries.

Kiran Magar has over 11 years of experience in Supply Chain Management. He is a team-oriented Sr. Principal Consultant with 9 years of experience in PP/PP-PI/QM, SCM DP and SNP implementations, SAP upgrade project management & execution and technical support management. He has delivered on many complex projects in Life Science Industry, Processing Industry, Automobile Industry and High Tech Industries.

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Introduction to Deployment and TLB

Deployment

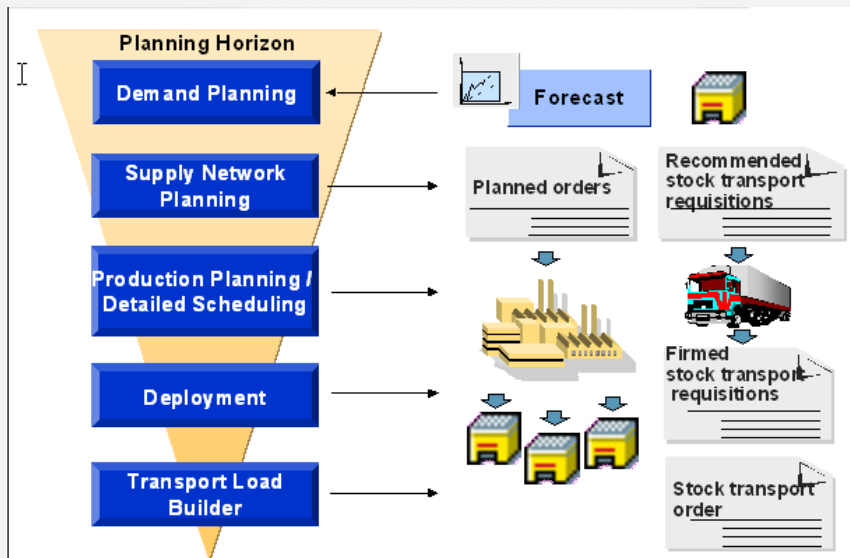
Deployment is the process which determines what demands can be met with the existing supplies both for the In-house produced and Externally Procured. In other words Deployment functionality determines how and when the Inventory should be deployed to the Distribution centers, Customers or Vendor Managed Inventory locations.

- Deployment uses various Strategies like Fair share, Push, Pull-Push and minimum cost flow optimization. And these are maintained in the Deployment profiles
- If the Supply is equal to the Demand then Deployment confirms the SNP plan.
- When the Demand is more than the Supply – then the Deployment applies Fair Share Rule and calculates the plan for the deployment.

Fair Share Rules can be as below

- Proportional
 - Target fulfillment
 - Quota arrangements
 - Transportation Priority
- When the Demand is less than the Supply – the Deployment applies Push and calculates the plan for the deployment.

Note: In this document we will demonstrate Fair share rule by Quota arrangements (Deployment – Heuristic) and subsequent TLB scenario



- **Pull**
 - All demand within the pull deployment horizon is met through deployment
 - Distribution occurs accordingly to the due date specified at the demand location
 - No supply is distributed to the demand source in advance of the demand date
- **Push**
 - All supply is distributed immediately to the demand locations for the planning horizon

- **Pull/Push**
 - All supply is distributed immediately to the demand locations to meet all demand within the Period of time over which deployment considers the planned distribution demand
- **Push by Quota Arrangement**
 - System uses the demand dependant quota arrangements assigned to the transportation lanes to distribute supply
- **Push considering the Safety Stock Horizon**
 - Safety stock at the source location is used to fulfill only the demands within the corresponding safety stock horizon, and not other demands beyond this horizon

Deployment Heuristics versus Optimization

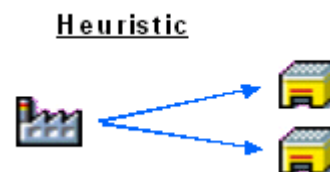
Heuristics Deployment:

Calculates a replenishment plan for one product at one location

Fair share

Push

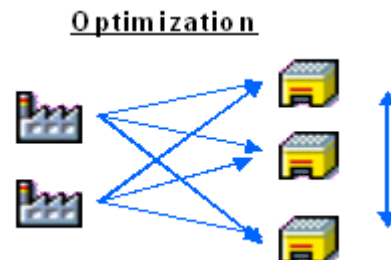
Fair share and Push rules are defined in the deployment profile



Optimized Deployment:

Calculates a replenishment plan for one product at all locations in the network

Minimum cost flow optimization



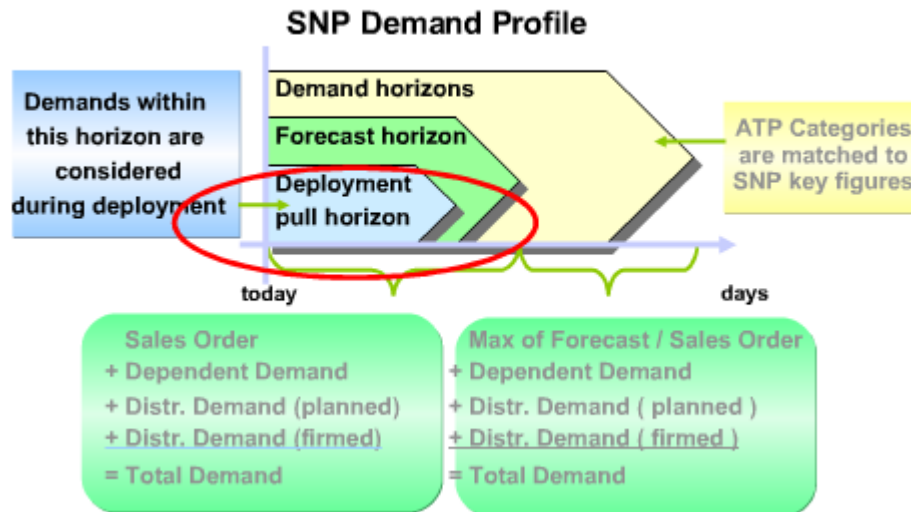
- The Output of Deployment Run will be Firmed Stock transfer Purchase Requisitions.

Deployment Master Data:

Pull Deployment Horizon:

Pull Deployment Horizon is the period of time over which deployment considers the planned distribution demand. The horizon starts from today's date.

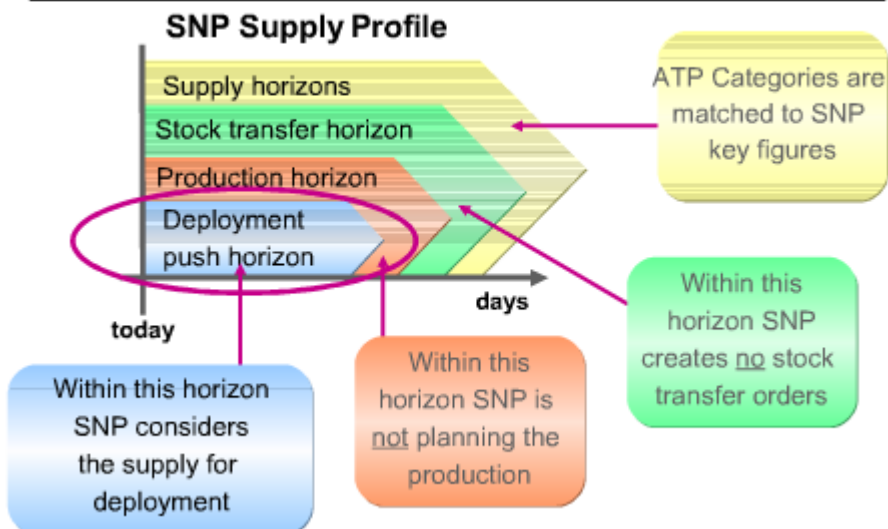
Product Pull Deployment Horizon



Product Push Deployment Horizon:

Product Push Deployment Horizon is the period of time over which deployment considers receipts that were defined in the ATD Receipt category group of location master data. The horizon starts from today's date.

Product Push Deployment Horizon



Transport Load Builder

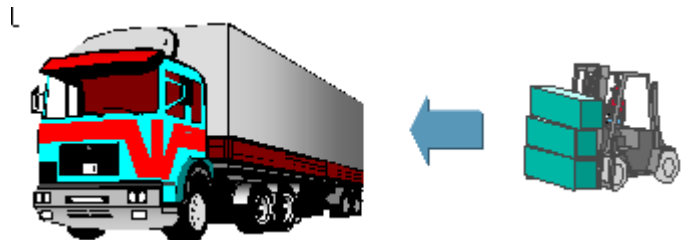
The primary purpose of the Transport Load Builder (TLB) is to use the results of the deployment run (single product transport recommendations) to create multi-product transport orders in a time period for a transportation zone.

It should be ensured that:

- The transportation methods are filled to maximum capacity
- No transportation method is dispatched that is not filled to minimum capacity
- For stock transport orders that could not be satisfied during the TLB run due to specified constraints, you can build transport orders manually

Factors Considered in TLB Run:

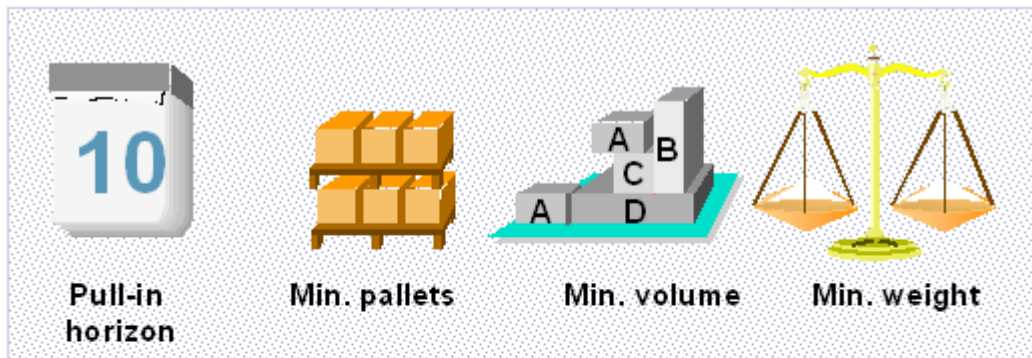
- Maximum range of coverage
- Minimum/Maximum load weight
- Maximum volume
- ATP check



- The system groups transportation recommendations for individual products together until the minimum values for volume, weight and number of pallets specified in the TLB profile for creating a load have been reached. If transportation recommendations cannot be converted, the system generates an alert and the planner can carry out the conversion manually.
- The Transport Load Builder (TLB) combines planned stock transport orders to form feasible transport units. If the planned stock transport order is for a VMI customer, then the result is processed as sales orders in the system. Otherwise, the result is a company-internal transport order.
- There is no tracking of resource usage and no consideration of product-specific constraints (for example, flavor migration) or special transport requirements (for example, package orientation or refrigeration).

TLB Master Data

TLB Profile:



- SNP only plans the capacity of an entire transport fleet. The TLB looks first at individual transportation methods.
- The minimum values for capacity (cubic volume and weight) and pallets to build a load and the maximum amount of product per load are defined in the TLB profile. The system checks the planned transport orders against the minimum and maximum values. If the planned transport orders do not meet either the minimum or maximum requirements, the system activates an alert. The role of the Alert Monitor is to inform you of exception cases that occur in the process. An exception is an unexpected event that interrupts the normal planning run.
- The system uses the parameters defined in the TLB profile to calculate the transport orders. The transport orders are always multiples of the rounding value defined in the lot size profile.
- The TLB uses the lane-dependent lot size profile to determine how to build transport loads based on the available transport orders.

Parameter for TLB Profile: SNP_TLB_01

Rule Cntr	Parameter	Oper. LL	Param.Val.	Oper. UL	Param.Val.	UoM
1	WEIGHT	>	1	<=	1,200	EA

Transportation Lane:

2 Transportation lanes are created for Start Location 3200 (Plant) and Destination Location 3400 & 3800 (D.C.)

Change of Transportation Lane 3200 -> 3400

Product-Specific Transportation Lane

Product	Product Short Description	Start date	End Date	Min. LS	Max. LS	Proc.Pric
DEPLOY4	Deployment FIN 4	11/07/2008	12/31/9999	0.000	0.000	0.00
DEPLOY5	Deployment FIN 5	11/07/2008	12/31/9999	0.000	0.000	0.00
DEPLOY6	Deployment FIN 6	11/10/2008	02/08/2009	0.000	0.000	0.00
H-1234567890	FINISHED PRODUCT - Ready to	11/28/2008	12/12/9999	0.000	0.000	0.00
OPT_FIN_1	OPTIMIZER Material 1	10/01/2008	12/31/9999	100.00	100.00	0.00

Means of Transport

MTr	Mns/Transp	Start date	End Date	All Prods	Aggr. Plng	DetId Plng	Trsp. Cal	Fix Duratn	Trsp
0001	Truck	09/05/2008	09/19/2008	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9ASNP	<input type="checkbox"/>	
0001	Truck	11/22/2008	01/04/2009	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9ASNP	<input type="checkbox"/>	
FTL TRUCK	FTL TRUCK	09/24/2008	12/31/9999	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9ASNP	<input type="checkbox"/>	

Means of Transport: 0001 maintained with TLB Profile

Means of Transport

MTr	Mns/Transp	Start date	End Date	All Prods	Aggr. Plng	DetId Plng	Trsp
0001	Truck	09/05/2008	09/19/2008	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9ASNP
0001	Truck	11/22/2008	01/04/2009	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9ASNP
FTL TRUCK	FTL TRUCK	09/24/2008	12/31/9999	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	9ASNP

TSP For Means of Trans. 0001

TSP	Description of Transp. Service Provider	MTr	Start date	End Date	Costs of TSP	Unit	BUn

Parameters

- Fix Trsp. Duration
- Fix Trsp. Distance
- Aggr. Planning
- DetId Planning
- Do Not Build Transit Stock
- Disc.Mns of Trans.
- Valid for All Products

Transp Calendar: 9ASNP
 Transp Distance: 3,519.088
 Trsp. Duration: _____ Hours Precision: 0
 Addnl Retentn Per.: _____
 Transportn Costs: _____
 Cost Function: _____
 Resource: _____
 Mns of Trsp. Costs: _____
TLB Profile: SNP_TLB_01 Old TLB Prof.: _____
 Bucket Offset: 1.00
 Period Factor: 0.500
 DefTrspGuidlineSet: _____

Scenario

Brief Description of the Deployment Scenario

Product is produced in 3200 manufacturing plant to meet the demand in its distribution centers 3400 and 3800. However, due to capacity constraints, there is insufficient supply to meet the demand. Deployment determines a fair share replenishment of the distribution centers to address the problem immediately.

Material master settings in SNP

The screenshot displays the SAP SNP interface for configuring material master settings. The main window is titled "Change Product H-1234567890 for Location 3200". The product is identified as "H-1234567890" with a base unit of "EA" and a description of "FINISHED PRODUCT - Ready to Deploy". The location is set to "3200" (Atlanta).

The interface is divided into several sections:

- SNP Demand Profile:** Includes fields for Demand Profile, Forecast Horizon, Pull Depl. Hor. (set to 20), Period Split, VMI Promo.LTime, and a checkbox for "Fcast Horizon in Past".
- SNP Supply Profile:** Includes fields for Supply Profile, SNP Prod. Hor., Extd SNP Prod. Hor., SNP Stk Trn.Hor., Push Depl. Hor. (set to 20), Depl. SS Push H, and checkboxes for "Fix Production" and "Fix Stock Transfrs".
- SNP Deployment Profile:** Includes fields for Deploymt Profile, Push Distributn, Fair Share Rule (set to C), and Demand at Source Location.
- Other Data:** Includes Priority, Purch. Group, VMI Purch.Group, Cust. Product, ATD Receipt, and ATD Issue.
- SNP Checkg Hor.:** A field for the check horizon.

A "Fair Share Rule" dialog box is open, showing a list of 5 entries:

Fair Share Rule	Short Descript.
A	Proportional Distribution Based on Demands
B	Proportional Fulfillment of Target
C	Proportional Distribution Based On Quota Arrangement
D	Proportional Distribution Based On Priorities
X	User-Defined Fair-Share Distribution

Change Product H-1234567890 for Location 3200

Product: H-1234567890 Base Unit: EA
 Prod. Descript.: FINISHED PRODUCT - Ready to Deploy
 Location: 3200 Atlanta

SNP 1 SNP 2 Demand Lot Size PP/DS **Procurement** GR/GI

Procurement		Procurement Costs	
Procurement Type	F	Cost Function	
Planned Deliv. Time	Days	Procurement Costs	

Stock		Stock Costs	
	1,000 EA	Prod. Storage Costs	Day
ABC indicator		Safety Stock Penalty	Day

Quota arrangement rules maintained for Location 3200 (Manufacturing plant) with 70 percent to DC 3400 and 30 percent to DC 3800

Display Outbound Quota Arrangements - Location 3200

Total Quota Arrangements

Product	Product Short Description	Start date	End Date	Reqd Grpng	Req. Split	Split Qty	U
DEPLOY_TEST_KM	Material for Deploy and TLB	11/23/2008	02/08/2009		<input type="checkbox"/>		
DEPLOY1	Deployment FIN 1	11/06/2008	12/31/9999		<input type="checkbox"/>		
DEPLOY4	Deployment FIN 4	11/07/2008	12/31/9999		<input type="checkbox"/>		
DEPLOY6	Deployment FIN 6	11/10/2008	02/08/2009		<input type="checkbox"/>		
H-1234567890	FINISHED PRODUCT - Ready to Deploy	11/29/2008	02/08/2009		<input type="checkbox"/>		
V2R_SNP_DEPLOY3	Material-1 for Fairshare Rule C	11/18/2008	02/08/2009		<input type="checkbox"/>		
V2R_SNP_DEPLOY6	Material-1 for Push By Quota	11/18/2008	02/08/2009		<input type="checkbox"/>		

Product	Start date	End Date	Ty...	Partner Location	Quota A	Heuristic	Alloc. qty.	Quota B
H-1234567890	11/29/2008	02/08/2009	LOK	3400	70.00			
	11/29/2008	02/08/2009	LOK	3800	30.00			

Quota Arrangement Header	
Product	H-1234567890 FINISHED PRODUCT - Ready to Deploy
Validity Period	Start Date: 11/29/2008 End Date: 02/08/2009
Parameters	<input type="checkbox"/> Allow Reqmt Splitting Rqmts Grouping: <input type="text"/> Min. Split Quantity: 0.000

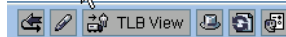
Planning Book for Material H-1234567890 at Manufacturing Plant 3200

Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN

SAP



Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN

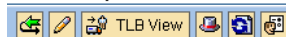


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Planning Edit Goto Settings System Help



Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN



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Planning Edit Goto Settings System Help SAP

Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN

APO Location: 3800 | APO Product: H-1234567890

Product	Ty...	Locati...	Product St	Unit	11/29/2008	11/30/2008	12/01/2008	12/02/2008	12/03/2008	12/04/2008	12/05/2008
H-1234567890		3200	FINISHED	EA							
H-1234567890		3400	FINISHED	EA							
H-1234567890		3800	FINISHED	EA			2,000				
Forecast				EA							
Sales Order				EA			2,000				
Distribution Demand (Planned)				EA							
Distribution Demand (Confirm...)				EA							
DistrDemand (TLB-Confirmed)				EA							
Dependent Demand				EA							
Total Demand				EA			2,000				
Distribution Receipt (Planned)				EA							
Distribution Receipt (Confirme...)				EA							
Distribution Receipt (TLB-Con...)				EA							
In Transit				EA							
Production (Planned)				EA							
Production (Confirmed)				EA							
Manufacture of Co-Products				EA							
Total Receipts				EA							
Stock on Hand				EA							
Supply Shortage				EA			2,000	2,000	2,000	2,000	
Safety Stock				EA							
Reorder Point				EA							
Target Days' Supply				D							

On running Location Heuristic at Distribution centers 3400 and 3800 the demand

Planning Edit Goto Settings System Help

Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN

TLB View

APO Location: 3400 APO Product: H-1234567890

Product	Unit	11/29/2008	11/30/2008	12/01/2008	12/02/2008	12/03/2008	12/04/2008	12/05/2008
SNP PLAN	EA							
Forecast	EA							
Sales Order	EA			2,000				
Distribution Demand (Planned)	EA							
Distribution Demand (Confirm ...)	EA							
DistrDemand (TLB-Confirmed)	EA							
Dependent Demand	EA							
Total Demand	EA			2,000				
Distribution Receipt (Planned)	EA			2,000				
Distribution Receipt (Confirme ...)	EA							
Distribution Receipt (TLB-Con ...)	EA							

Fixed	Rec/ReqQty	BUn	Category	Category Description	Product	Source	Destinatn	MTr	Start Date	Start Time	End
	2,000	EA	AG	Purchase Requisition	H-1234567890	3200	3400	0001	12/01/2008	12:00:00	12/05/2008

Planning Edit Goto Settings System Help

Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN

TLB View

APO Location: 3800 APO Product: H-1234567890

Product	Unit	11/29/2008	11/30/2008	12/01/2008	12/02/2008	12/03/2008	12/04/2008	12/05/2008
SNP PLAN	EA							
Forecast	EA							
Sales Order	EA			2,000				
Distribution Demand (Planned)	EA							
Distribution Demand (Confirm ...)	EA							
DistrDemand (TLB-Confirmed)	EA							
Dependent Demand	EA							
Total Demand	EA			2,000				
Distribution Receipt (Planned)	EA			2,000				
Distribution Receipt (Confirme ...)	EA							
Distribution Receipt (TLB-Con ...)	EA							

Fixed	Rec/ReqQty	BUn	Category	Category Description	Product	Source	Destinatn	MTr	Start Date	Start Time	End
	2,000	EA	AG	Purchase Requisition	H-1234567890	3200	3800	0001	12/01/2008	10:50:00	12/05/2008

Run Deployment at manufacturing plant 3200 - Based on the quota arrangement 700 units were deployed to DC 3400 and 300 units were deployed to DC 3800

The screenshot displays the SAP SNP Interactive Planning (TLB) interface. The main workspace shows a data table with the following requisitions:

Order	Item No.	Sched. Ln. No.	Group No.	Avail/ReqD	Avail/ReqT	Fixed	Rec/ReqQty	BU	Category	Category Description
10014285	000010	0000		12/01/2008	12:00:00		700	EA	EG	Deployment: Release for stk tra
10014286	000010	0000		12/01/2008	12:00:00		300	EA	EG	Deployment: Release for stk tra

The requisitions created are now available in SAP and we can see this in ME53n

Brief Description of the Transportation Load Builder (TLB) Scenario:

After the deployment run, the transportation planner needs to group the different orders going from manufacturing plants to distribution centers. The orders must be grouped to meet the minimum requirement by weight, volume and number of pallets to ensure that transportation vehicles are filled to maximum capacity.

TLB – Interactive Planning

- Deployment run results in recommended transport orders.
- Transport Load Builder then enables you to manipulate the recommended transport orders within the time period you specify to build a feasible, consolidated transport load.
- Interactive planning displays the relevant values such as cumulative volume, cumulative weight, and capacity consumed so that you can determine when a load is complete.
- TLB Interactive planning desktop is similar to the other interactive planning desktops in SNP.
- The profile selection, planning books/data view, and macros are on the far left side of the screen
- Work is displayed on the right side with three sub area
 - TLB-confirmed shipments appear on the left hand side of the work area.
 - Transport recommendations appear on the right side of the work area
 - Transport order items appear on the bottom half of the work area

TLB Interactive Planning before TLB Run for Transportation lane with source location 3200 (Plant) and destination location 3800 (D.C.).

TLB Interactive Planning

The screenshot shows the SAP TLB Interactive Planning interface. The 'Selected Objects' table lists three rows with source location 3200 and destination 3800. The 'Deployment Stock Transfers' table is visible, showing a requisition for 12/01/2008 with product H-1234567890. A red arrow points to this row with the text "Deployment Stock Transfer requisition from earlier Deployment Run".

Ty	APO Source	Ty	APO Destin	Mod..	MTr	Mns.
	3200		3400	000	0001	Truc
	3200		3400	000	FTL TRUCK	FTL
	3200		3800	000	0001	Truc

Demand Date	Avail. Date	Product
12/01/2008	12/01/2008	H-1234567890

Click on Change icon  (Ctrl+F2) and run TLB 

After TLB Run you can see TLB order created under TLB Shipments:

TLB Interactive Planning

The screenshot shows the SAP TLB Interactive Planning interface after the run. The 'TLB Shipments' table now shows a new order with Order Number 000000008027, Category Text ConRel, Ship Date 12/01/2008, and Ship Time 12:00:00. The 'TLB Shipment Items' table shows the product details.

Ty	APO Source	Ty	APO Destin	Mod..	MTr	Mns.
	3200		3400	000	0001	Truc
	3200		3400	000	FTL TRUCK	FTL
	3200		3800	000	0001	Truc

Order Number	Category Text	Ship. Date	Ship. Time
000000008027	ConRel	12/01/2008	12:00:00

Product	Confirmed Quantity	BU	Order Number	Item N...	Schd

Double clicking the order will open the order item under TLB Shipment Items.

TLB Interactive Planning

The screenshot displays the SAP TLB Interactive Planning interface. The main window shows a TLB Shipment for Order Number 000000008027, Category Text ConRel, Ship. Date 12/01/2008, and Ship. Time 12:00:00. The Order Items table shows a single item for Product H-1234567890 with a Confirmed Quantity of 300.00, BU EA, and Order Number 000000008027. A red arrow points to this item with the text "TLB Stock Transfer Order Item". The left sidebar shows the Selection profile V2R_TLB with sub-items DEPLOYMENT AND TLB 11-29, V2R_TLB, V2R_DEP, TLB_KM1, and DEP_KM1. The Planning Book/Data View shows 9ASNP94 with sub-items SNP94(1) SNP PLAN and SNP94(2) CAPACITY CHECK. The Alert Manager Alerts section shows "No alerts exist for your selection".

TLB Stock transfer order of 300 Quantity created.

Similarly run TLB for APO Destination 3400 (D.C.)

TLB Interactive Planning

The screenshot displays the SAP TLB Interactive Planning interface for a different order. The main window shows a TLB Shipment for Order Number 000000008028, Category Text ConRel, Ship. Date 12/01/2008, and Ship. Time 12:00:00. The Order Items table shows a single item for Product H-1234567890 with a Confirmed Quantity of 700.00, BU EA, and Order Number 000000008028. The left sidebar shows the Selection profile V2R_TLB with sub-items DEPLOYMENT AND TLB 11-29, V2R_TLB, V2R_DEP, TLB_KM1, and DEP_KM1. The Planning Book/Data View shows 9ASNP94 with sub-items SNP94(1) SNP PLAN and SNP94(2) CAPACITY CHECK. The Alert Manager Alerts section shows "No alerts exist for your selection".

TLB Stock transfer order of 700 quantities created.

Go back to SNP Interactive planning and refresh the screen. You can see 2 orders 8027 – 300 ea and 8028 – 700 ea created and TLB Confirmed.

Planning Book: [Live] SNP INTERACTIVE PLANNING / SNP PLAN

APO Location: 3200 | APO Product: H-1234567890

Selected Objects: Product: H-1234567890, Ty: 3200

Selection profile: V2R_TLB, DEPLOY, V2R_TLB, V2R_DEP, TLB_KM1

Planning Book/Data View: 9ASNP94, SNP94(1), SNP94(2)

SNP PLAN	Unit	INITIAL	11/29/2008	11/30/2008	12/01/2008	12/02/2008	12/03/2008	12/04/2008	12/05/2008
Forecast	EA								
Sales Order	EA								
Distribution Demand (Planned)	EA				3,000				
Distribution Demand (Confirmed)	EA								
DistrDemand (TLB-Confirmed)	EA				1,000				
Dependent Demand	EA								
Total Demand	EA				4,000				
Distribution Receipt (Planned)	EA								
Distribution Receipt (Confirmed)	EA								
Distribution Receipt (TLB-Confir...)	EA								

Order Number	itmNo.	Schd.Ln.No	Avail/ReqD	Avail/ReqT	F	Receipt/Reqmts	Quantity	Original quantity	Total Quantity	BUr
8027	1		12/01/2008	12:00:00	X		300	0	300	EA
8028	1		12/01/2008	12:00:00	X		700	0	700	EA

Related Content

- SAP Help: www.help.sap.com
- Deployment Help (SCM 5.0):
http://help.sap.com/saphelp_scm50/helpdata/en/1c/4d7a375f0dbc7fe10000009b38f8cf/frameset.htm
- TLB Help (SCM 5.0):
http://help.sap.com/saphelp_scm50/helpdata/en/1c/4d7a375f0dbc7fe10000009b38f8cf/frameset.htm
- For more information, visit the [Supply Chain Management homepage](#).

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