

How to Use the APO Alert Monitor for Reporting

By Shaun Snapp, Supply Chain Consulting

Editor's Note: One of the most compelling parts of the new SAP® market is seeing users begin to take advantage of the "hidden" features within (now) robust solutions such as APO. In this excellent "how to" article, APO expert Shaun Snapp tells readers how to take advantage of the APO Alert Monitor—specifically the lesser-known "database alerts"—for improved reporting and analysis. Properly used, these reporting tools can be used to identify and compare areas of "overcoverage," leading to better inventory control and less overstocking. This is the kind of bottom-line benefit that is allowing savvy users to yield some tangible benefits by "digging deeper" into functionality they have already paid for, but may not be fully utilizing.

APO Alerts for Reporting

Many APO users are familiar with using APO Alerts for automating feedback after planning runs. In this way, the monitor provides advanced warning of problems with the plan related to "material, capacity, transportation, and storage constraints"¹ and provides the intelligence necessary to allow users to take action. This is why the Alert Monitor was originally created and indeed is the focus of the SAP® online help section on how to use the Alert Monitor. However, the Alert Monitor is equally effective in providing a snapshot picture of the plan results. You can look at

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every alert as a pre-written report that you can use to perform an overall diagnosis of the APO planning results. This is critical to catching both systematic planning problems and inconsistencies—both pre-go-live, and to a somewhat lesser degree, during the support phase of an APO project.

There are two kinds of APO Alerts: Dynamic Alerts and Database Alerts. Some SAP customers find it difficult to distinguish the two, so the following definitions from help.sap.com may be helpful:

"Dynamic alerts mirror the current planning situation but are not stored in the database. In contrast to the SNP alerts in APO

Release 2.0, alerts are now macro-dependent and thus can reflect the actual data in liveCache. This alert type is NOT suitable for dealing with large volumes of alerts because large numbers slow down performance."

"Database alerts show the planning situation as it was during the planning run, or last executed macro. When dealing with large data volumes, it is best to perform a batch-planning run using the appropriate database macro. The results of the planning run show the situation as it was at the time of the run, in other words, with database alerts you see a snapshot of the plan during run time."²

Alerts in APO have been designed to provide a strong reporting functionality that moves the Alert Monitor away from being merely an interactive tool and into an analytical tool. Since most SAP customers are familiar with using the Alert Monitor for its dynamic capabilities, this paper will explain how to use the lesser-used, but extremely useful, database alerts. We will cover the basic setup for running database alerts in the Alert Monitor. Then a real life project problem will be illustrated and addressed.

Configuring Alerts

Our first step is to review what alerts are available to us in the Alert Monitor. We do this by finding the Alert Monitor under Supply Chain Monitoring. (See Figure 1.)

¹ Definition from help.sap.com

http://help.sap.com/saphelp_apo31ca/helpdata/en/35/2cd77bd7705394e10000009b387c12/frameset.htm

² Definition from help.sap.com

After double clicking on the Alert Monitor, we are taken to the screen in Figure 2.

As you can see from Figure 2, the screen we are taken to is not very instructive. However, once you have a simple translation of the buttons that are listed in Figure 2, you will be able to navigate this easily.

- The "Settings" button actually means "Where you go to select and activate an Alert Profile."
- The "Maintain profile" button means "Create New Profiles."
- The "Refresh alerts" button means "Run the Alert Profile."

Let's start with the Maintain profile (Create New Profiles). By clicking on this button, we are taken to the screen in Figure 3.

On the left-hand side of Figure 3, we have the categories that the various alerts are lumped into, and on the right, we have a selection box (at top) for previously saved alerts, and below that, the specific alerts to be configured. Creating and saving a single alert is called creating an alert profile. The alert profiles are categorized by APO module:

- ATP
- Forecast
- SDP
- (TLB) Transportation Load Builder
- PP/DS
- VS (Vehicle Scheduling)

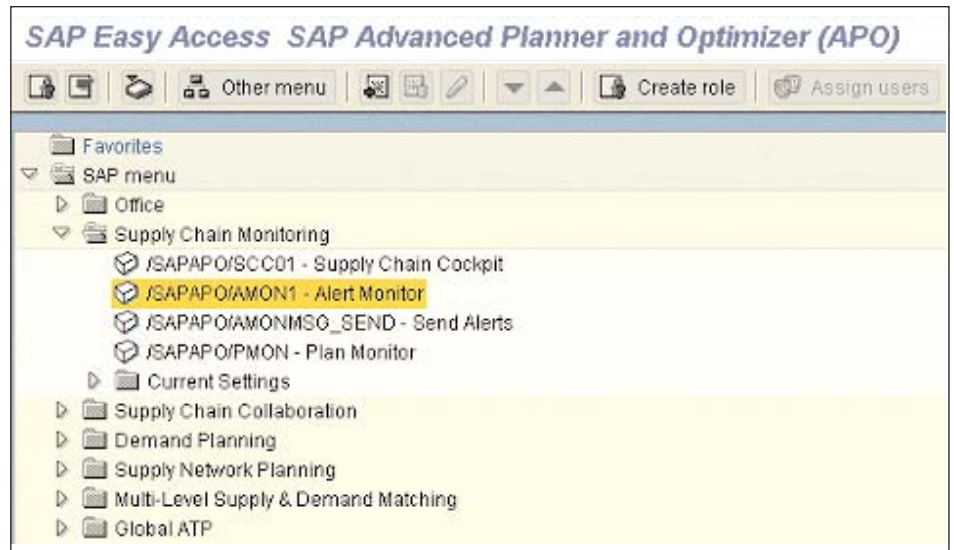


Figure 1: APO Menu – Supply Chain Monitoring

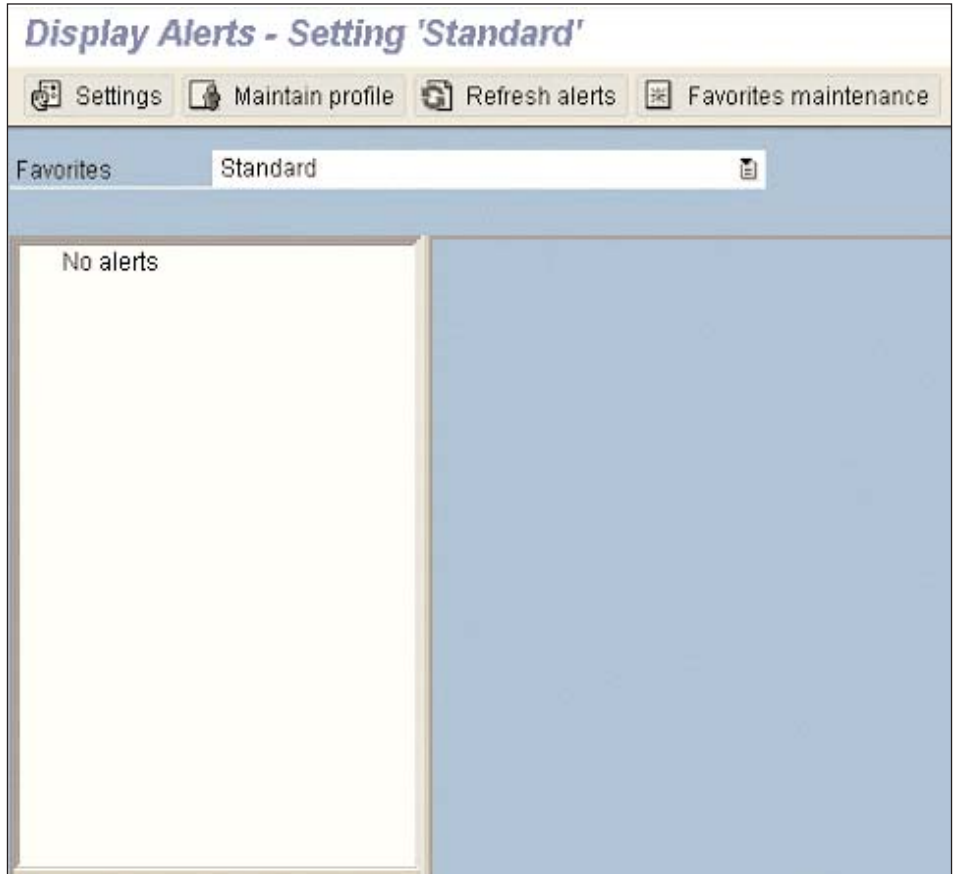


Figure 2: Display Alerts – Initial Screen

The categorization is important because the types of alerts that can be selected change per module. For instance, the Transportation Load Builder alerts listed in Figure 4 would be nonsensical if applied to ATP and vice versa. Each module has its own set of mostly mutually exclusive alerts (or KPIs, if you like) that are germane to its area of APO.

A quick perusal between the various alert categories demonstrates that the monitor is capable of a wide variety of alerts. APO Version 3.1 has 42 different alerts just for the PP/DS module. However, like most things, you will find that just a few represent the majority of the alert profiles that you will create. Our case study will be using two of these alerts within the PP/DS module to address some common project issues.

The Planning Question

The question that all good APO planners must tackle is whether the system is planning in a way that maximizes the use of production and transportation resources while keeping inventory as low as possible and meeting demand in a timely manner. Because the main interface for users looking for inventory, production, and movement history is the Product View transaction, one can receive a misimpression of how APO is actually planning the entire network. Figure

5 shows an example of the Product view, transaction /n/SAPAPO/RRP3.

The product view is the natural transaction for looking at an individual factory and provides

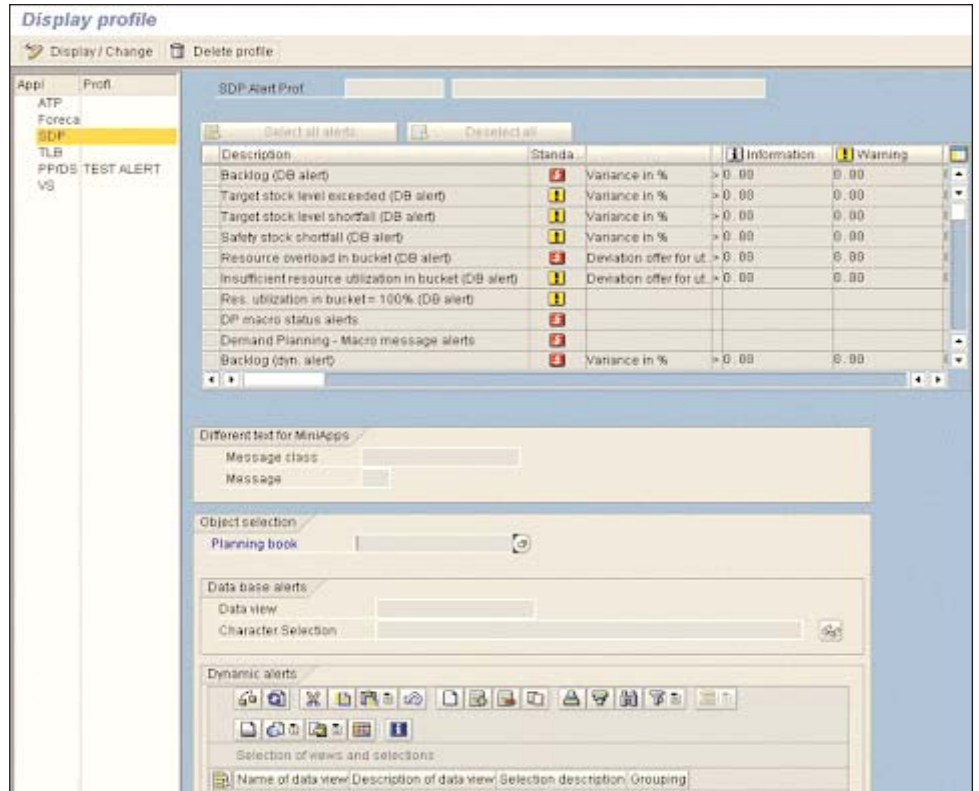


Figure 3: Alert Change (and Create) Screen

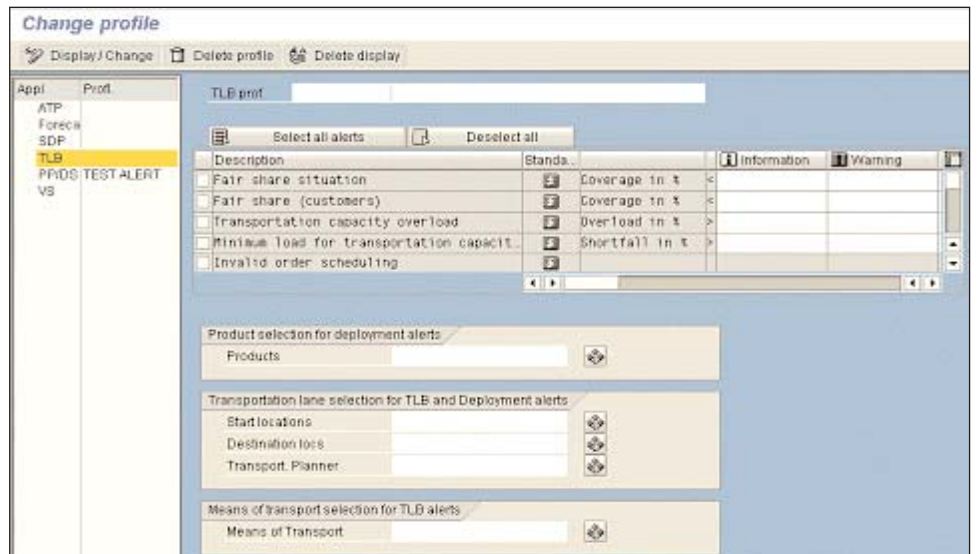


Figure 4: TLB Alert Alternatives in the Alert Profile Change Screen

the capability of drilling down in order to see the pegging structure (the relationship between demands and pegged or assigned inventory). The Alert Monitor's strengths are the opposite of the product view. The Alert Monitor culls the entire network (if you configure it that way) to find problems. This is like casting out a net in search of fish instead of pole fishing. Therefore the Alert Monitor and product view³ work in conjunction, one telling you where the problem is and the other providing a detailed view of the problem to figure out what went wrong. This is where reports like the Database Alert Monitor come into play.

Creating Custom Alerts

Now that we have set the background of our two tools (the Alert Monitor and the product view), it's time to get into our case study and create an alert profile. In this example, planners have been concerned because they have seen individual examples (in the product view) of what they deem as unnecessary excess production. Therefore, we want to determine if we have system-wide excess stock and/or production at the factory and warehouse overages. That is, we want to know if the system is habitually making the error of planning overages. We can determine if APO currently has these two overages with two different Alert Monitor reports.

Excess Production

The first step is to select the correct category of alerts to configure our report. Since we are concerned with stock and production, we will select the

Product view: 008-0030-001205

Product: 008-0030-001205 | Location: F3372 | Ping version: 000

Days' sup. [D]: 9,999.99 | Rcpt days [D]: 9,999.99

Elements: Periods Quant Stock Product mast

Date	Time	Category	Receipt/qrmt. elemnt.	Recd/issQty
23.09.2003	00:00:00	PIOrd(NF)	17122153/1	10,007.910
23.09.2003	00:00:00	StckOut	17159508/1/1	10,007.910
08.10.2003	13:00:00	PIOrd(NF)	17122683/1	10,007.910
08.10.2003	13:00:00	StckOut	17159702/1/1	10,007.910
24.10.2003	01:00:00	PIOrd(NF)	17122079/1	10,007.910
24.10.2003	01:00:00	StckOut	17152403/1/1	10,007.910
23.11.2003	01:00:00	PIOrd(NF)	17121427/1	11,390.940
23.11.2003	01:00:00	StckOut	17155053/1/1	11,390.940
29.11.2003	13:00:00	PIOrd(NF)	17122083/1	10,007.910
29.11.2003	13:00:00	PIOrd(NF)	17122937/1	10,007.910
08.12.2003	13:00:00	StckOut	17131660/1/1	10,007.910
24.12.2003	01:00:00	StckOut	17129729/1/1	10,007.910
29.01.2004	13:00:00	PIOrd(NF)	17121807/1	10,007.910
10.02.2004	17:00:00	StckOut	17127059/1/1	10,007.910
28.02.2004	13:00:00	PIOrd(NF)	17121359/1	10,007.910
28.02.2004	13:00:00	PIOrd(NF)	17122827/1	10,007.910
07.03.2004	13:00:00	StckOut	17140403/1/1	10,007.910
29.03.2004	12:00:00	PIOrd(NF)	17123595/1	10,007.910
29.03.2004	12:00:00	PIOrd(NF)	17123598/1	13,732.290
08.07.2004	12:00:00	StckOut	17146754/1/1	10,007.910
12.07.2004	16:00:00	StckOut	17147572/1/1	13,732.290
24.07.2004	00:00:00	StckOut	17147576/1/1	10,007.910
12.12.2004	17:00:00	PIOrd(NF)	17122980/1	10,007.910
12.12.2004	17:00:00	StckOut	17156563/1/1	10,007.910
15.09.2006	11:59:59		End of production horizon	

Figure 5: The Product View for One Factory

Change profile

Display / Change | Delete profile | Delete display

Apppl: ATP | Prof.: BDP Alert Prof

Select all alerts | Deselect all

Description	Standa	Information	Warning
<input type="checkbox"/> Backlog (DB alert)	5	Variance in %	
<input type="checkbox"/> Target stock level exceeded (DB alert)	1	Variance in %	
<input type="checkbox"/> Target stock level shortfall (DB alert)	1	Variance in %	
<input type="checkbox"/> Safety stock shortfall (DB alert)	1	Variance in %	
<input type="checkbox"/> Resource overload in bucket (DB alert)	5	Deviation offer for ut.	
<input type="checkbox"/> Insufficient resource utilization in bucket (DB alert)	1	Deviation offer for ut.	
<input type="checkbox"/> Res. utilization in bucket = 100% (DB alert)	1		
<input type="checkbox"/> DP macro status alerts	5		
<input type="checkbox"/> Demand Planning - Macro message alerts	5		
<input type="checkbox"/> Backlog (dyn. alert)	5	Variance in %	

Figure 6: PP/DS Alert Change (Create) Profile

³ Some may argue that the planning book, rather than the product view, can be better for detailed analysis. It really depends what you are checking. The planning book definitely has extra segmentation of stock; however, for the overall stock/inventory position and particularly the movement history between locations, the product view is what to use.

PP/DS category by selecting it from the Change profile screen on the left-hand side of the screen. (See Figure 6.)

When scrolling through the various alerts, the first thing you may notice is the large number of different reports within APO. You can combine reports to get very specific responses. You can also create a complex combined report that looks for multiple issues in one alert profile.

By scrolling down the Alert screen of the PP/DS category, we can find "order creates overcoverage." We will select this category. Because we only want overages when they are substantial, we will want the variance to be higher than 5%. Next we need to set the limit of our Alert report. To do this, we move towards the Selection area below the alert listing box. In

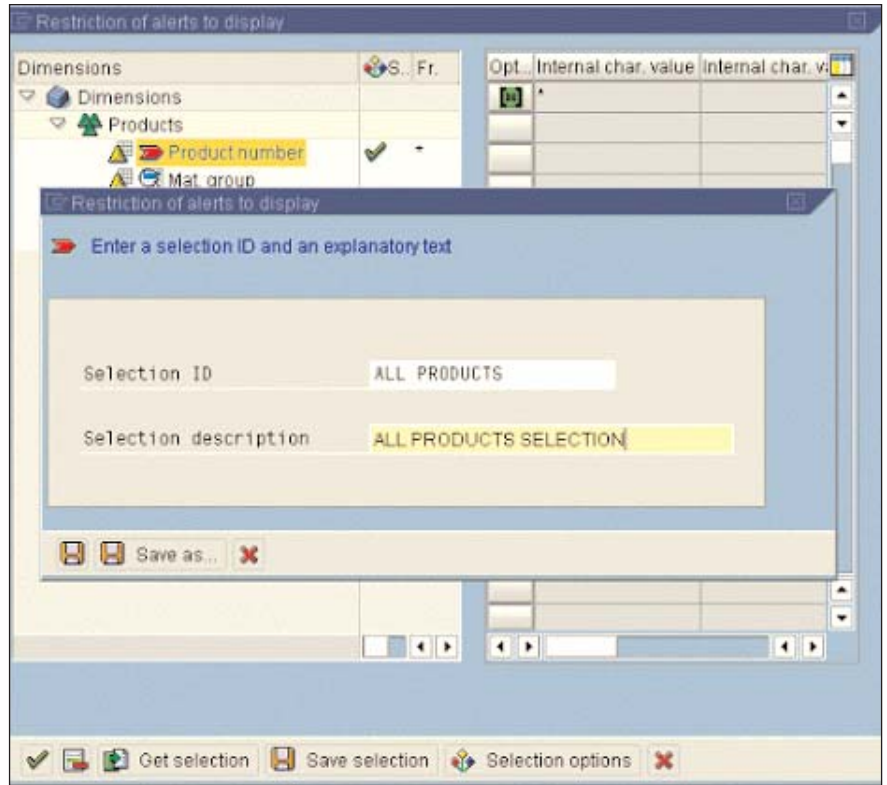


Figure 8: Selection ID and Explanatory Text Dialog Box

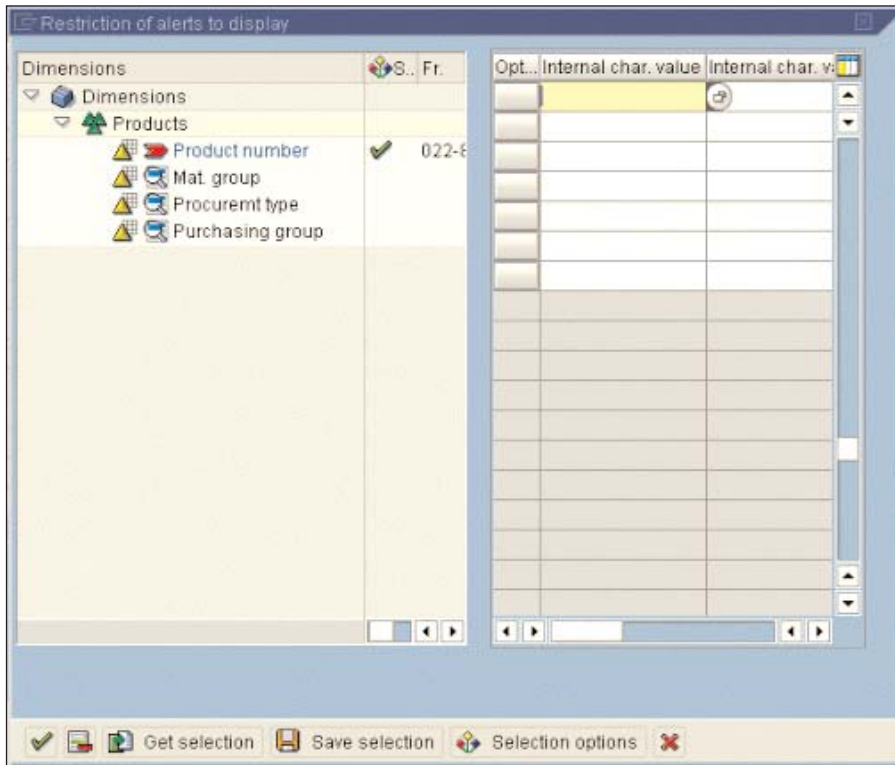


Figure 7: The Selection Variant

essence, we are creating a variant to control for what we intend to run the alerts. For the Product, Locations, Production planner, and ATP categories, I recommend selecting the selection buttons to the right of the input boxes in Figure 6). The dialog box that appears as a response is shown in Figure 7.

Since we want a global view, we will place an "*" in the internal character value field, meaning that we want to look at all products.

Once you attempt to save your selection, you will receive the dialog box in Figure 8. Within the screen that asks for a "Selection ID and an Explanatory Text," we enter descriptive values to properly name our parameter. We will then save the selection as ALL PRODUCTS.

We will go through the same process for the Locations parameter. This will leave us with an alert that searches only Warehouses and Factories called ALL WAREHOUSES + FACT. We will then select the ATP categories that represent production and stock and call this selection PRODUCTION + STOCK. We leave the parameters of Prod parameter empty because we do not want to restrict the search on those parameters. By saving this variant, as shown in Figure 9, we are now ready to run our Alert Monitor Profile.

The alert profile has been saved. We can now execute the new profile by "green arrowing" out of the Change Profile screen, which will take us back to the Display Alerts Screen listed in Figure 10.

From here, we select the Refresh Alerts button, which takes us to Figure 11.

The Display Alerts screen is the main screen for running our saved alert profiles. From here, we select the PP/DS Alert Profile that we have just created called PROD + STOCK. We then select the appropriate planning version and set the time horizon for which we want alerts. In our scenario, our CTM run looks out 18 months, so we will want alerts for that period, as shown in Figure 12.

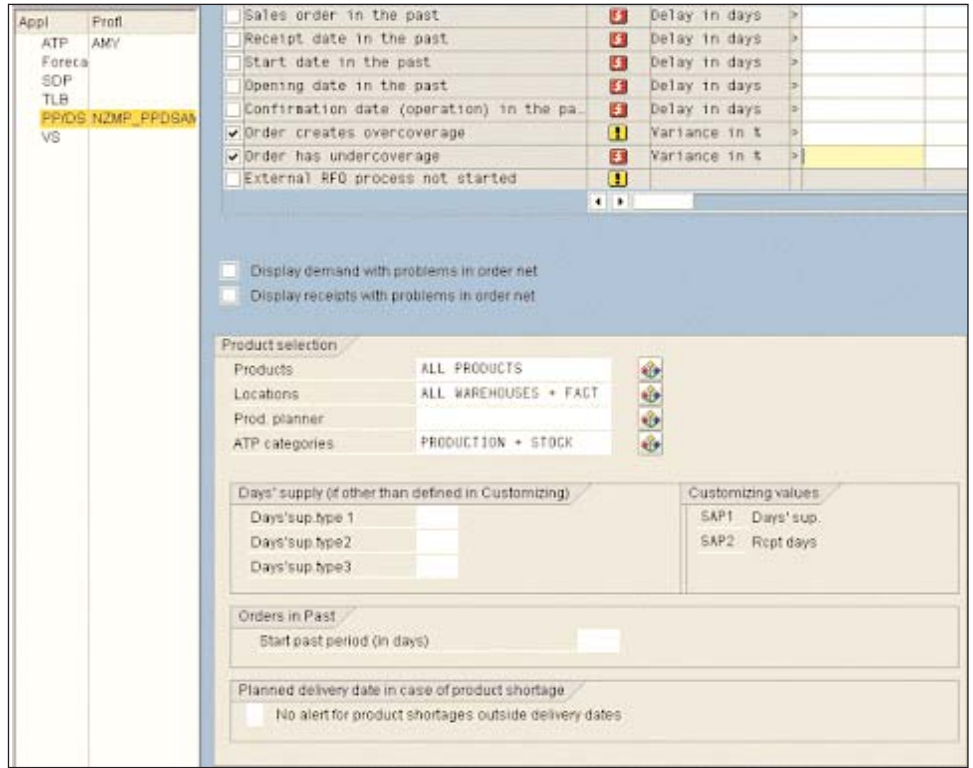


Figure 9: Product Selection with a New Saved Profile Called PROD + STOCK

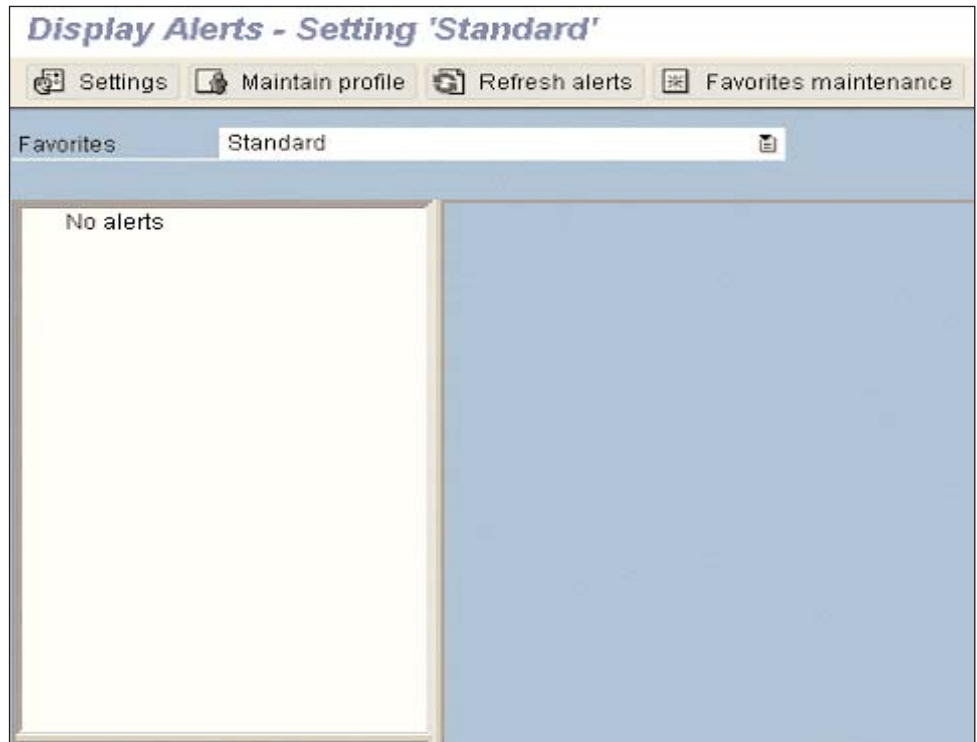


Figure 10: Display Alerts Screen

The screenshot shows the 'Display Alerts' screen in SAP. At the top, there is a 'Settings' section with a dropdown menu set to 'Standard'. Below this is a 'Version-dependent alert selection' section with several input fields: 'Planning version', 'Forec. alert prof.', 'SDP alert profile', 'TLB alert profile', 'PP/DS alert profil' (set to 'PROD + STÖCK'), and 'VS alert profile'. A 'Test Alert' button is located to the right of the 'PP/DS alert profil' field. Below this is an 'ATP Alerts (Version 000)' section with an 'ATP alert profile' input field. The 'Horizon' section is at the bottom, featuring two radio buttons: 'Relative time interval' (selected) and 'absolute time interval'. Under 'Relative time interval', there are four options: 'Months' (selected), 'Weeks', 'Days', and 'Hours'. The 'Months' option has a value of '18' in a yellow box. To the right of these options are 'Offset' fields and 'From: Date' and 'Til: Date' fields, each with a 'Time' field set to '00:00:00'.

Figure 11: Display Alerts Screen

The screenshot shows the 'Display Alerts' screen in SAP, focusing on the 'Favorites' section. At the top, there is a 'Favorites' section with a dropdown menu set to 'Standard'. Below this is a 'Views' section with a tree view. The tree view has two main items: 'Location product view' and 'Alert view'. The 'Alert view' is selected and highlighted in yellow. Under 'Alert view', there is a list of alert types: 'Product late (fixed pegging)', 'Due date violation (fixed pegg', 'Product too early (fixed peggir', 'Receipt date too early (fixed p', and 'Order has undercoverage'. At the bottom of the screen, there is a navigation bar with left and right arrow buttons and a search field.

Figure 12: Display Alerts Screen

The report view that we see in Figure 12 is not immediately very helpful. To get a better view, we will need to double click "Location product view" in the upper left-hand corner, which will display all products. We then click the header to the "all product" list, which will bring up the full report viewed in Figure 13.

Here all the alerts now appear. This report is quite flexible, with all the sorting and filtering capabilities of similar APO row and column views. In most cases, you will want to use the summation feature in order to get a total "global" value for the (overstock in this case) Key Figure⁴ that you are reporting on. To do this, high-

Stat	Product	Order	Cat	Priority	Actual qty	Target qty	Unit
	022-0027-016063	Planning	FA	3	0	15,750	KG
		Planning	FA	3	0	47,250	KG
	022-0031-016071	Planning	FA	2	0	1,500,000	KG
	022-0033-016073	Planning	FB	3	0	94,500	KG
		Planning	FA	2	0	300,000	KG
	022-0035-016074	Planning	FA	2	0	126,000	KG
		Planning	FA	3	0	202,000	KG
		Planning	FA	2	0	63,000	KG
		Planning	FA	3	0	15,750	KG
	022-0035-016078	Planning	FA	2	0	150,000	KG
	022-0036-016070	Planning	FA	3	0	15,750	KG
	022-8250-012222	Planning	FB	3	0	63,000	KG
	022-8760-016077	Planning	FA	1	0	135,000	KG
		Planning	FA	1	0	97,200	KG
		Planning	FA	3	0	79,000	KG

Figure 13: Display Alerts Screen with All Products Selected

Stat	Product	Order	C	Priority	Actual qty	Target quantity	Unit
	020-0028-016040	Planning	FB	2	0	200,000	KG
	020-6615-001678	Planning	FB	2	0	63,900	KG
		Planning	FB	3	0	50,400	KG
	022-0027-016061	Planning	FB	3	0	31,500	KG
	022-0033-016067	Planning	FB	3	0	50,000	KG
	022-0035-016069	Planning	FB	3	0	100,000	KG
		Planning	FB	3	0	52,333	KG
	022-0036-016070	Planning	FB	1	0	333,500	KG
	022-0083-016061	Planning	FB	3	0	94,500	KG
	027-3047-011854	Planning	FA	2	0	10,000	KG
	020-0023-016038	Planning	FB	3	0	26,000	KG
	020-0025-016040	Planning	FB	3	0	18,000	KG
	020-0028-016040	Planning	FB	1	0	36,000	KG
	020-0060-016040	Planning	FB	3	0	630,000	KG
		Planning	FB	2	0	250,000	KG
	020-0063-016041	Planning	FB	2	0	150,000	KG
	020-6660-000973	Planning	FB	2	0	72,000	KG
	022-0027-016061	Planning	FB	2	0	31,500	KG
		Planning	FB	3	0	15,750	KG
	022-0031-016065	Planning	FB	3	0	15,750	KG
	022-0033-016067	Planning	FB	3	0	26,000	KG
		Planning	FB	3	0	13,750	KG
	022-8420-001956	Planning	FB	3	0	51,300	KG
	022-8740-002112	Planning	FB	3	0	102,600	KG
	022-8840-009753	Planning	FB	1	0	1,000,000	KG
	020-0025-016040	Planning	FB	3	0	5,400	KG
	022-0027-016061	Planning	FB	3	0	15,750	KG
	020-6810-001494	Planning	FB	3	0	7,000	KG
	020-8830-003903	Planning	FB	3	0	30,000	KG
	022-8095-000624	Planning	FB	3	0	1,600	KG
	022-8797-000771	Planning	FB	3	0	13,333	KG
	022-8858-000638	Planning	FB	3	0	200	KG
	027-3026-013745	Planning	FA	3	0	87,000	KG
	027-3097-014231	Planning	FA	3	0	36,000	KG
					0	955,523,844.670	KG

Figure 14: Summed Values for Quantities Screen

light the columns you intend to sum and select the green summation sign button, which is the header of the spreadsheet as listed in Figure 14.

Any of the columns can be filtered by right-mouse clicking on the column heading. It's often good to have some values handy such as yearly sales, sales by weight, etc., in order to have the ability to compare the results against a meaningful business number.

In order to answer our question of whether overcoverages are habitually being created, a more powerful analysis of individual optimization, CTM runs, PP/DS runs, etc., can be performed by summing the actual quantities and placing it as the denominator over a figure such as gross sales. Currently, there is no facility in the SAP Alert Monitor to perform this analysis, but the Alert results

⁴ Key Figure or quantities, such as sales revenue, fixed costs, sales quantity, or number of employees.

In addition to the key figures saved on the database, you have the option of defining derived (calculated) key figures in the query definition in the Business Explorer. Such key figures are calculated using a formula from the key figures of the InfoCube.

Examples of derived key figures are "sales revenue per employee" (sales revenue divided by number of employees), "variance as a percentage", or "contribution margin". -

Source: SAP Help

can be easily copied into Excel for these purposes. This requires running successive database alerts and copying and pasting the results into Excel with the results listed in Figure 15.

**Using the Database
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reports around.**

From this analysis, we were able to compare the overcoverage created by different CTM runs (thereby determining when the engine tended to create more overcoverage, and also comparing the overall system wide overages to historical averages and to the client's yearly sales. Our conclusion was that the APO system was not habitually overproducing. Once we determined we did not have a system-wide problem, we were able to use the PROD + STOCK profile to direct us to the right product and location combinations where overcoverages were occurring. The final analysis directed us to re-evaluate our minimum lot sizes that were causing the individual instances of overcoverage.

Conclusion

The Alert Monitor is both a tool for on-line alerts as well as a key tool for reporting on APO planning results. Using the alert report tool serves as an analytical counterbalance to the often-used Product View (which focuses on a narrow slice of the plan.) The alert report can be run for many different products, locations, and other characteristics.

Using the Database Alert Monitor, SAP has provided a broad range of alerts to develop reports around. What has been demonstrated in this paper is just how to set up the alerts and use them for analysis. These alerts are categorized by APO submodule, and are specific to the needs and function-

ality of those modules. In order to best leverage the Alert Monitor, one needs to spend some time looking through the many options offered in the profile view. Having done this, one can present the exact alert reports that meet the user's current needs, or, in some cases, present targeted position reports that the user had not even considered.

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	Actual qty	Target qty	Surplus
CTMRUN 1			
Production Orders	24,716,471	17,630,030	7,086,441
Planned Production	14,764,078	9,524,573	5,239,505
Inwards Stock Movement	91,680,975	42,295,852	49,385,123
Total	131,161,525	69,450,455	61,711,069
CTMRUN 2			
Production Orders	24,211,351	17,518,998.86	6,692,352
Planned Production	15,136,830.90	10,057,185.48	5,079,645
Inwards Stock Movement	91,430,943.91	41,995,224.84	49,435,719
Total	130,779,126	69,571,409	61,207,717
CTMRUN 3			
Production Orders	15,863,676	9,484,691.63	6,378,984
Planned Production	17,801,387.35	11,210,966.70	6,590,421
Inwards Stock Movement	119,776,872.90	56,109,461.01	63,667,412
Total	153,441,936	76,805,119	76,636,817
CTMRUN 4			
Production Orders	15,863,676	9,484,692	6,378,984
Planned Production	17,801,387.35	11,210,966.70	6,590,421
Inwards Stock Movement	119,776,872.90	56,109,461.01	63,667,412
Total	153,441,936	76,805,119	76,636,817
CTMRUN 5			
Production Orders	9,970,180	4,314,116.63	5,656,063
Planned Production	17,801,387.35	11,210,966.70	6,590,421
Inwards Stock Movement	119,776,872.90	56,109,461.01	63,667,412
Total	147,548,440	71,634,544	75,913,896

Figure 15: Example of Comparative Excel Spreadsheet That Displays Overstock Alerts

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