THE BEST-RUN E-BUSINESSES RUN SAP

Manage Global ATP in SAP APO (3.x) / SAP SCM (4.x / 5.0 / 5.1)

Best Practice for Solution Management

Version Date: March 2009

This version is valid for SAP APO 3.0A, 3.1 and SAP SCM 4.0, 4.1, 5.0, 5.1 (2007)

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Applicability, Goals, and Requirements

To ensure that this Best Practice is the one you need, consider the following goals and requirements:

Goal of Using this Service

This Best Practice enables you to set up a monitoring and emergency concept for the **Global Available-to-Promise (Global ATP)** service, which is part of SAP's **Supply Chain Management (SCM)** solution using **SAP R/3 or SAP ECC** and the **SAP Advanced Planning and Optimization (SAP APO 3.0, 3.1 or SAP SCM 4.0, 4.1, 5.0 and 5.1)**. Note that beside SCM 5.1, you will often find the equivalent release naming SCM 2007.

This concept aims to:

- Define procedures for monitoring, error handling and escalation management for the *Global Available-to-Promise* service
- Define procedures for monitoring, error handling and escalation management for the *Backorder Processing*
- Define the roles and responsibilities for all people involved in the customer's support and monitoring organization, with respect to the *Global Available-to-Promise* service

These procedures ensure the smooth and reliable flow of the Global ATP service, independently of the core business processes that use the Global ATP service.

Alternative Practices

You can also book an on-site Solution Management Assessment (SMA), a Solution Management Optimization (SMO) service or a non-standard service, depending on your main topics, whereby SAP experts support you in drawing up the relevant procedures.

Staff and Skills Requirements

To implement this Best Practice, you require the following teams:

Application Management Team

The SCM / APO business process management concept, which this Best Practice aims to produce, should be created by the Application Management Team. This team combines experts from your company:

- Business department
- Solution support organization (for example, the IT department and the Help Desk)
- Implementation project team

Execution Teams

The execution teams are the following groups, which form the customer's Solution Support Organization:

- The Business Process Champion for each business process
- Application Support
- Development Support
- Program Scheduling Management
- Software Monitoring Team
- System Monitoring Team

More information about the roles and responsibilities of these teams can be found in the superordinate Best Practice *General Business Process Management*, which you can obtain through the SAP Solution Manager.

Necessary or Useful Training Courses:

- ADM355 SAP APO System Administration
- PDEF08 LiveCache Administration
- TTW060 SAP APO Technical Administration
- TEWA60 SAP APO livecache Monitoring
- SCM210 Core Interface APO
- SCM670 Global Available-to-Promise
- SCM600 Processes in Sales & Distribution

System Requirements

This document applies to SAP APO releases 3.x and to SAP SCM releases 4.x/5.x.

Duration and Timing

Duration
Creating a business process management concept can take around one week per business process. Implementing the business process management concept can take around one additional week.

Timing
The best time to apply this Best Practice is during the planning phase or during the implementation phase for your SAP solution.

How to use this Best Practice

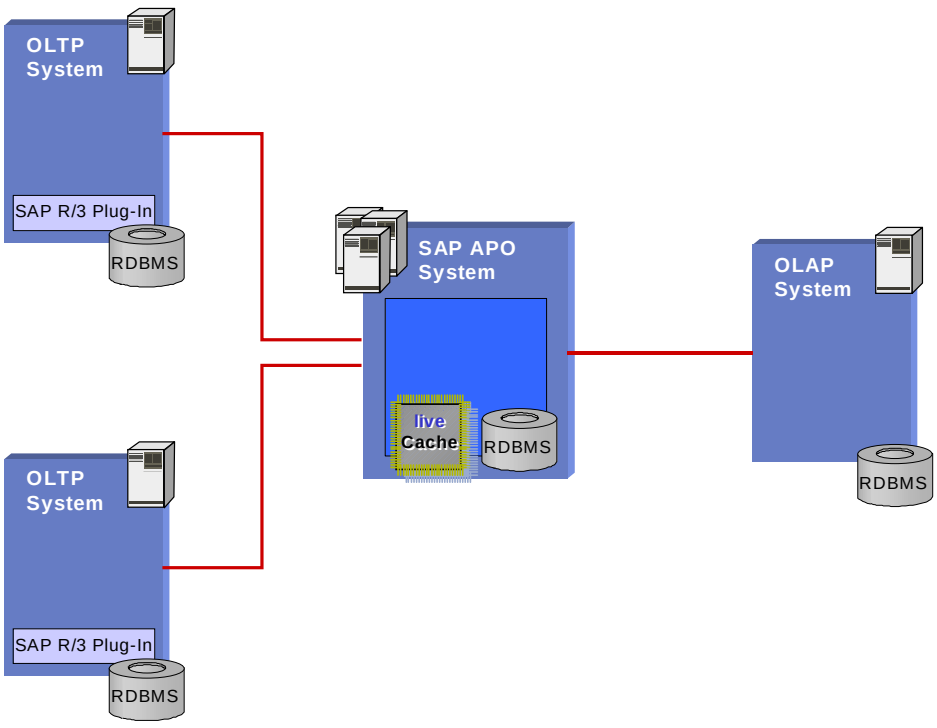
In advance, read the whole document to get an overview about its structure, contents and details.
Determine your core business process relevant for Global ATP functionality that is to be monitored.
Read the Best Practice document dedicated to SAP APO Core Interface (CIF) as well.
Take the monitoring elements from the tables and insert them into your own template. Complete the information according to your specific requirements, for example, frequency and time of monitoring activity and/or housekeeping jobs.
Do not forget to include the respective information for interfaces other than CIF and for business process steps performed with your own (Y-, Z-) programs. Determine the related monitoring activities, tools, and responsible teams and fill in the table accordingly.
Create a separate table for activities that are not directly related to a business process step, like those mentioned in section System Administration related to the APO CIF in the CIF Best Practice.
Proceed in the same way with all your other core business processes and other activities you want to monitor.

Preliminary Information

The SCM System Landscape

The main components of an SAP SCM system landscape are summarized in the following table and shown schematically in the subsequent illustration.

SAP APO/SCM System	The SAP Advanced Planning and Optimization System facilitates the strategic, tactical, and operational planning processes. SAP APO consists of several software components. Firstly, a relational database system (RDBMS), known as the APO DB, an SAP R/3 Basis, and the APO application programs. In addition, there is a separate, very fast, object-oriented SAP DB database called liveCache, and a number of programs that execute elaborate optimization algorithms called optimizers. These components can run on the same or on different servers.
OLTP System	The Online Transaction Processing system covers functionality for sales and distribution, material and inventory management, controlling, shop floor control, logistics execution, and so on.
OLAP System	An Online Analysis Processing system such as SAP Business Intelligence (SAP BI) can provide cumulated historical data as a basis for future extrapolation purposes in APO Demand Planning. The data in the APO Demand Planning component can be further used during an ATP check involving the check against *product allocations.*



Monitoring Procedure

In applying this Best Practice procedure, you create a company-specific process-oriented monitoring concept. This concept consists of monitoring activities to be performed for each **business process step** and its respective monitoring objects.

When adapting this concept for your company, you must specify the times, responsible teams, and escalation paths (teams) for the monitoring activities associated with each business process step and its monitoring objects.

Under each business process step, you will find the following information:

- A detailed functional description of the process step
- Monitoring activities for the process step
- Error handling, restartability, and escalation
- A monitoring object table, listing each relevant monitoring object, showing the:
    - Monitoring object
    - Monitoring transaction or tool
    - Monitoring frequency
    - Monitoring time (intentionally left blank, to be filled in according to your schedule)
    - Indicator or error
    - Monitoring activity or error handling procedure
    - Responsible team
    - Escalation procedure

The monitoring frequency in these monitoring object tables is partly only a rough estimate and has to be adapted to your particular business process. During the GoingLive and stabilization phase of your SCM implementation project, all items listed in this document should be monitored tightly. After becoming more experienced with system behavior, error occurrences, and application operations, the monitoring frequency can be decreased, but should never be reduced to zero (unless you do not use the respective function at all). Important planning jobs usually have to be monitored after each run. Regular jobs of minor priority (for example, certain clean-up jobs) can be checked less frequently for execution than they are supposed to run, for example, daily jobs can be checked weekly.

The following seems obvious but should nevertheless be mentioned: Besides the monitoring of jobs described in the business process steps below, it is essential that you check all jobs that are running in your system at least several times per day for abnormal terminations (status “cancelled”, see Error Handling, Restartability and Escalation) and that you investigate and correct these terminations appropriately. This check can be done easily, for instance, with transaction SM37 by entering the time interval since the latest check and selecting all jobs with status “cancelled”. If you have no automatic notification in place that informs the people responsible for Program Scheduling Management in your Support Organization of abnormally terminated jobs, you need to take measures to ensure that this is done manually in a reliable and timely manner.

A number of jobs must run periodically in a live R/3 installation, for example, the jobs for deleting outdated jobs or spool objects. For details and comments, see SAP Note 16083.

Business Process Monitoring in SAP Solution Manager

For some monitoring activities, for example, IDoc or background job monitoring, it is possible to use a tool for automated monitoring. Such automated monitoring is optimally implemented using Business Process Monitoring in SAP Solution Manager.
Business Process Monitoring (BPMon) within SAP Solution Manager is the proactive and process-oriented monitoring of the core business processes of your company. It includes the observation of all technical and business application-specific functions that are required for a smooth and reliable flow of the business processes.
Business Process Monitoring (BPMon) reveals even slight deviations from a pre-defined ideal business process state which would otherwise remain undetected until the flow of the process would be seriously impacted. It gives automated alerts including the possibility to notify these via various communication means like e-mail, SMS and others. Types of errors that can be monitored are, for example, errors from logs (system log, application log), throughput and backlog KPIs for various

applications, dialog performance, update errors and so on. The possibility to keep the alerts for a defined time allows you to evaluate a kind of history and to identify trends in the alert occurrence at an early stage.
For further details on Business Process Monitoring, refer to http://service.sap.com/bpm.

Global Available-to-Promise (Global ATP)

Increasingly, companies operating worldwide are forced to globalize available information to conduct business efficiently. Specifically, this means that information has to be made available across system boundaries as quickly as possible to provide optimized decision support. Global ATP can be used in heterogeneous system landscapes to provide necessary information in real time. Global ATP is one of the central services of SAP APO/SCM that utilizes liveCache, a performance oriented technology in which data is stored aggregated in the form of time series.
Global ATP provides the following basic methods:

- Product availability check (with/without Characteristics)
- Check against product allocations
- Check against the forecast

It uses the following advanced availability check methods:

- Combination of basic methods
- Rules-based ATP (RBA)
- Advanced availability check methods with connection to production are:
  - Capable-to-Promise (CTP)
  - Multilevel ATP (MATP) [not available in APO 3.0A]

  Availability Check for Kit (Kit is the name for a bill of material that is always delivered completely and assembled.)

  In Capable-to-Promise (CTP) and the multilevel ATP check, Production Planning and Detailed Scheduling (PP/DS) is called to fulfill the requirement. Kit corresponds to simplified production.

- (Third-Party Order Processing): TPOP

  As of SAP SCM 5.0, Global ATP provides this external procurement in which a vendor supplies the products to a third party.

Note: As of SAP SCM 5.1, the terminology has changed. The two terms *basic methods* and *advanced methods* are replaced by the term *check methods* as new ATP check functions cannot be assigned to either a basic or an advanced method anymore.

Before performing this Best Practice, ensure that you carry out the following preliminary tasks or checks in the system, if Global ATP functionality is called from SAP R/3 or SAP ECC:

- You have successfully installed an SAP R/3 for release: 3.1I, 4.0B, 4.5B, 4.6B, 4.6C, R/3 Enterprise 4.70, SAP ECC 5.0 or SAP ECC 6.0.
- You have successfully installed an SAP APO for release 3.0, 3.1 or SAP SCM 4.0, 4.1, 5.0, 5.1.
- You have installed the R/3 Add-on APO CIF in SAP R/3 (valid until ECC 6.0)
- You made the default settings for the CIF integration function
- You generated and activated relevant integration models
- You have made the relevant ATP Customizing settings in SAP R/3 or SAP ECC and SAP APO/SCM

- You transferred SAP R/3 / ERP ATP Customizing to SAP APO/SCM and then set the *Import Customizing* switch in SAP APO/SCM to *Not allowed*

From SAP SCM 4.1 on, a newly released BAPI (function module: BAPI_APO_AVAILABILITY_CHECK) exists for you to execute an availability check from customer-specific applications or systems.

As of SAP SCM 5.0, you can also call the Global ATP using Enterprise Services. For more information, see SAP Library for *Enterprise SOA* under *Enterprise Services for SAP SCM*.

Note: Since the Core Interface is an essential component of SAP APO/SCM and its business processes, its monitoring and administration is of critical importance for the performance and reliability of any business process that exchanges data between SAP APO/SCM and the SAP R/3 or SAP ECC systems connected to it. Therefore, it is of utmost importance that you take particular note of the Business Process Management procedure described in the Best Practice Document dedicated to CIF.

Functions of Redistribution: Backorder Processing (BOP) and new functions

Besides the most commonly used function backorder processing (BOP), there are other, new functions of redistribution in Global Available-to-Promise as of SCM 5.0 to reset and reallocate the confirmations from an ATP check. Those functions can be used in addition to BOP.

- Event-Driven Quantity Assignment (EDQA)

EDQA is designed to be an 'emergency' tool to fulfill high priority orders and not a mass number of items like BOP (for example, while EDQA normally deals with tens of items, BOP deals with thousands of them). EDQA processes are built on the SAP Business Workflow framework.

- ROC (Reassignment of Order Confirmations)

High priority orders can be confirmed on cost of confirmation taken from low priority orders.

- Order Due Lists (ODL)

ODL is a filtered and sorted reference list of order items that could be processed in EDQA. The filtering is similar to the BOP filters, but the execution takes place during order inbound processing in APO.

It is also possible to use ODL as a worklist: order items can be manually inserted into and deleted from the list. From the interactive ODL maintenance tool (TA /SAPAPO/ODL) it is possible to start BOP for selected items (items are selected manually from the ODL and not automatically by the BOP filter).

See SAP notes 832393 and 1130360 for release restrictions and how to set up EDQA/ODL and FAQ Note 1105656 for ODL.

The core business process you run in your company for backorder processing based on the SAP SCM solution may differ more or less from the standard process described and illustrated as follows.

In batch backorder processing (or backorder processing in the background), items are selected according to specific key fields (using filters) and brought into a processing sequence for the availability check (by means of a sort). The previously confirmed quantities are rejected and an ATP check is carried out for all selected items in the defined sequence. A new date can thereby be determined. The results are always held in a buffer. Depending on the execution mode, the results can be updated afterwards, processed later or rejected.

Business Process Step 1: Backorder Processing in Background

You define which orders will take part in batch backorder processing in the filter type (for example, Specific order type, product, location and so on). During Backorder Processing in Batch, the available quantities can be assigned to the orders according to the given prioritization, which will be defined in the sort profile. Via the sort profile, you define the sequence in which the items in backorder processing are processed. In the sort profile, you specify the characteristics, their sequence (or weighting), and the sort direction. The processing of orders is therefore carried out according to given priorities. After filtering and sorting the documents, an ATP check is then performed for the items. The basic methods (such as the product availability check or the check against product allocations) are fully supported. The advanced methods (such as rules-based ATP or multilevel ATP) - with the exception of Capable-to-Promise - are only supported for Sales documents. With release SCM 5.0, BOP is able to execute product substitution (via RBA, Interchangeability master data or Form Fit Function classes) for Stock Transfer Orders (STOs).

Business Process Step 2: Interactive Post Processing (Optional)

Using Interactive Post Processing, you perform an “operative simulation” (Execution Mode: With post processing). The results are not updated immediately but are saved in a buffer. To process the results, you call the results display. The assigned quantities are protected by temporary quantity assignments. From the results list, you can process the confirmations, newly determined by backorder processing. You can update or reject the results entirely afterwards. If necessary, you delete the results list or the results in the buffer. This means that the temporary quantity assignments are also deleted.

Sales Orders and Stock Transfer Orders are updated from SCM in a different way. To update Sales Orders, sales information from the ERP system is required. Therefore, backorder processing is sending “confirmation proposals” to the ERP system, which are checked there (for example, credit limit checks) prior to the update. Stock transfer orders on the other side are “planning documents” so that no sales information is required by the ERP system and, therefore, they are updated directly in SCM first.

Business Process Step 3: Update Stock Transport Orders by qRFC

(Available from SAP SCM 4.0)

If stock transfer orders are also rescheduled, unlike Sales Orders (Refer to Figure 3a), the update of stock transport orders occurs (3a) initially in SAP SCM and (3b) then in SAP R/3 / ECC. In case of an error during the update in SAP ECC, SAP SCM will be adjusted accordingly. (Refer to Figure 3b).

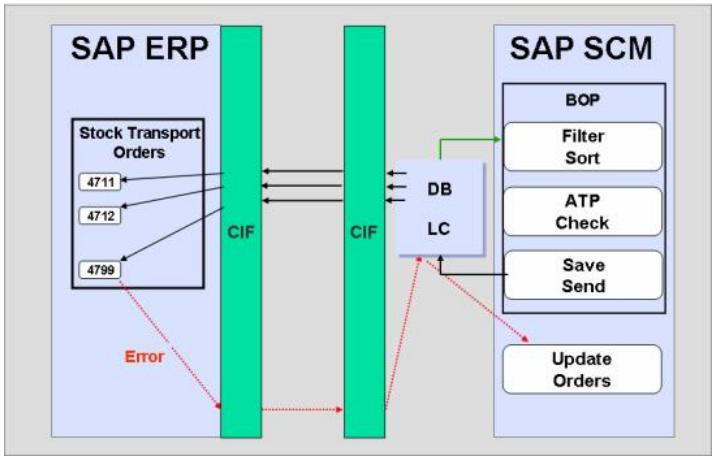


Figure 3 – Update of Stock Transport Orders

Business Process Step 4: Update Sales Orders by qRFC

Depending on the Execution mode of the Backorder Processing variant, sales orders are updated directly after a BOP run (BOP Execution Mode: Update Changes), or an update is triggered manually after interactive post processing by transaction /SAPAPO/BOP_UPDATE (BOP Execution Mode: With postprocessing). The SD document is automatically updated in the OLTP system, meaning that the document is changed. The data for the requirement (requested quantity, requested delivery date) is retained. The changes to the document relate to the confirmed quantity and the confirmed date.

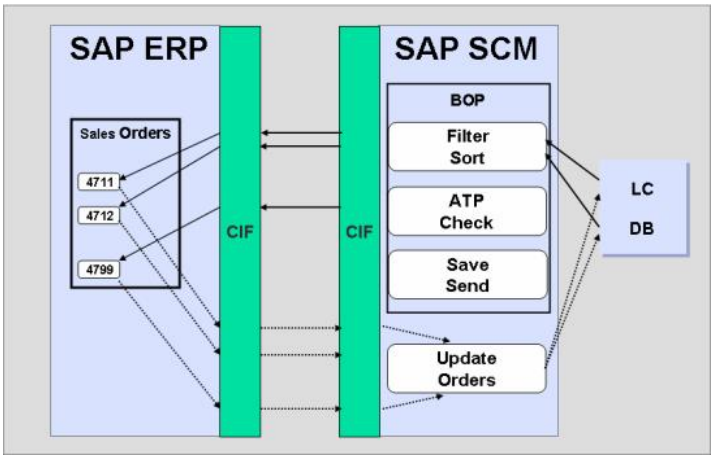


Figure 4 – Update of Sales Orders

If SD document items that are involved in the current backorder processing, are changed manually in SAP R/3 or SAP ECC during a backorder processing run (or before backorder processing update), the backorder processing result is ignored. Updating the manual change, re-releases the temporary quantity assignment written through backorder processing.

Business Process Step 5: Update Sales Orders and Temporary Quantity Assignments

After updating the sales orders in R/3 or ECC, corresponding temporary quantity assignments (TQAs) will be deleted automatically.

The results of backorder processing could be seen using transaction /SAPAPO/BOP_RESULT until they are deleted with report /SAPAPO/BOP_DELETE.

Monitoring Procedure

In applying this Best Practice procedure, you create a company-specific monitoring concept. This concept consists of monitoring activities to be performed and their respective monitoring objects.

When adapting this concept for your company, you must specify the times, responsible teams, and escalation paths (teams) for the monitoring activities.

Parts of the monitoring tasks described in this document can also be realized by using the Business Process and Interface Monitoring tool (BP&Imon) in the SAP Solution Manager. BP&IMon with the Solution Manager allows you to realize a centralized and automated monitoring concept.

Day-to-Day Business

Jobs

Backorder Processing (BOP)

Backorder Processing in SAP APO/SCM fulfills a basic request to Supply Chain Management that consists of changing confirmed quantities and dates within the framework of the ATP check.

Background backorder processing can be scheduled to run regularly (for example, daily) as a job, in accordance with the business requirements. If possible, this job should run at a time when no or few online sales order and delivery processing is taking place; this is not mandatory, but it is recommended.

See also consulting note 510912 for many tips and tricks about preparing successfully for using APO BOP.

If it is necessary to reduce the overall runtime of backorder processing, it can be scheduled in parallel with the available system resources. Otherwise, memory issues could occur (for example, SYSTEM_IMODE_TOO_LARGE dump, see note 548845).

As of SCM 4.1, an automated parallelizing backorder processing can be activated by using a parallelization profile (therefore, the following restrictions do not apply).

Consider the following points when you define your backorder processing variants for parallel run, otherwise over confirmation and wrong prioritization could occur.

- For running Backorder processing in parallel, the selections for the different variants have to be disjunctive.
- Correlation groups: If one of the order items that have been selected via the filter for backorder processing belongs to a correlation group, the other items of the correlation group are also imported for the correlation in case you set the flag *Correlation*. An ATP check is also carried out for these additional order items if the Check Correlation Group indicator is set. (For example, all products of items, which are connected by a delivery group at any of the relevant documents, have to be checked together within one group or process.)
- Rules based ATP: If location and/or product substitution is used in your selection, this could result in using other backorder processing group selection. All items with location products which participate within the same substitution chains have to be in one group. For example, the following substitution chains are defined: A → B → C; D → E → C; F → G → H. The products A, B, C, D, and E have to be checked within one group. The products F, G, and H can be checked in a second group. Otherwise this could lead to collisions, prioritization errors and also over-confirmation and/or under-confirmation situations.

- Product Allocation Group: All order items, which use the same product allocation time series, have to be checked within one backorder processing run.

- Forecast material: Parallel backorder processing selections should not use the same forecast product(s).

- Multilevel ATP: All products which use multilevel ATP and use the same resource (for example, a machine represented by a product allocation quantity) or the same component within a BOM have to be checked together in one BOP run. Otherwise, it can result in collisions (the ATP-check of one is waiting for the other one) or a less important order snaps up the component quantity which was designated for an important order, because the BOP run for the less important order was faster or was started earlier than the BOP run for the important order.

- Sales BOMs: Refer to Rule based ATP

Note that in general, backorder processing is not supported in combination with Capable-to-Promise.

Consistency Checks

Temporary Quantity Assignments

There are situations in which Temporary Quantity Assignments (TQA) exist in SAP APO/SCM although they are no longer being used. In this case, it is recommended to delete old temporary quantity assignments regularly.

Typical root causes of old non-persistent TQAs are:

- Manually deleted Queues (for example, because of unresolved SYSFAIL queues)
- Manually deleted transactional RFCs in transaction SM58
- Time-out dumps in R/3 (monitoring and RC analysis with transaction ST22)
- Update errors in R/3 (monitoring and RC analysis with transaction SM13)
- Issues with mass delivery processing (VL10)
- Backorder processing (/SAPAPO/BOP)

The business impact of outdated TQAs is that sales orders are not getting confirmed even if stock is actually available (known as, ATP under-confirmation):

- during manual GATP checks with orders changes
- during order creation (for example, by IDOCs)
- interactive backorder processing (BOPI)
- Backorder Processing (BOP).

You should ensure that the temporary quantity assignments to be deleted do not originate from processes that have not yet finished. Therefore, it is essential to check:

- If there are corresponding queue entries in SMQ2. If so, these must be restarted first.
  Since locking problems are often the reason why temporary quantities assignments are left, you should check transaction SM58 regularly and process transactional RFCs if necessary. In a system with a high number of GATP checks, report RSARFCEX should be scheduled as a batch job (for example, every hour, 30 minutes or 15 minutes).

Define a variant for report RSARFCEX:
For the selection of the date use the option for dynamic date selection in the variant with an interval from yesterday until today. No records later than: Select a time for example, 00:30:00.
Select the flags “Communication error”, system error, terminated due to overload, temporary application errors.

Otherwise, in the case of deleting too many TQAs manually, ATP over-confirmations (= negative ATP) can occur.

TQAs should be deleted regularly by using report /SAPAPO/OM_DELTA_REMOVE_OLDER.

The definition of the deletion offset depends strongly on your business scenarios and monitoring procedures. Examples are one hour, one day or two days.

See consulting note 488725 (FAQ: Temporary quantity assignments in Global ATP) for further information regarding TQAs and the mentioned report.

In addition, if required, the TQAs should be monitored regularly using transaction /SAPAPO/AC06 and be deleted on demand manually.

Check that SAP notes 843212, 737884 and 872949 are applied for the report /SAPAPO/OM_DELTA_REMOVE_OLDER.

If you use parallel BOP and operate SCM 5.0 with an LCA build lower than 16 or SCM 5.1 with an LCA build lower than 11, refer to note 1151090 to implement an additional follow-up step.

Remark: TQAs caused by backorder processing are deleted by report /SAPAPO/BOP_DELETE. But BOP result lists may be kept a longer time in the system.

Inconsistencies in Product Allocation Consumption

(Applicable only if product allocation is in use)

Inconsistencies between liveCache and APO DB for product allocation have to be checked regularly (for example, weekly) by means of transaction /SAPAPO/ATPQ_CHKUSG and have to be repaired subsequently to make sure that system has consistent status.

Correction report /SAPAPO/RMQUOT_USAGE_CHECK (corresponding transaction is /SAPAPO/ATPQ_CHKUSG) checks the consistency and corrects product allocation (PAL) assignment within SCM.

You can find the report in the SAP Menu: *Advanced Planning and Optimization* → *Global ATP* → *Environment* → *Product Allocations* → *Repairs*.

Note that this report has to be started online and requires manual interaction to correct inconsistencies. The report is often scheduled in the background, to evaluate the spool lists only. If there are errors, it is started manually.

It is possible to run this program in the background with an automated update of the checked items using the following workaround:

Create a Batch Input for the program /SAPAPO/RMQUOT_USAGE_CHECK via SAP Menu: *System* → *Services* → *Batch Input* → *Recorder.* Perform all the steps and then schedule it.

See note 676128 *Product Allocations: Control of Product Allocation Assignment* for further information.

Normally, there should not be any inconsistencies, therefore the repeated occurrence of inconsistencies needs to be identified and fixed.

Issues with product allocation consistency refer mainly to the tables /SAPAPO/SDQTVB and /SAPAPO/QTTAB. The reason for inconsistencies with product allocation is typically due to its flexible customizing options combined with user-exits or modifications. Each customer has a very different idea of how to use product allocation.

To achieve a consistent situation in product allocation, it might be necessary to use the following jobs in sequence:

- Check relevant planning areas. Run report /SAPAPO/TS_LCM_CONS_CHECK without repair set to check if you have a consistent situation. If not: Run this report again with *repair* set.

Make sure no other process is active for the planning area. For details see 425825, and if problems occur during repair mode, see note 509479.

- Run report SDRQCR21 to ensure VBBE data is correct. See note 25444 for details.
- Run the /SAPAPO/CIF_DELTAREPORT3 for sales orders. Set the flag *Use Table VBBE for Sales Order Comparison*. Make sure all sales data is consistent. See note 425825 for details.
- Run the report /SAPAPO/SDRQCR21. Make sure that the radio button *Read requirements from VBBE* is selected.
- It is an optional step to run also /SAPAPO/SDORDER_DEL. See notes 553476; 624539; 657214 for details. Use following options to run this report:
    - Delete obsolete records in table /SAPAPO/POSMAPN and /SAPAPO/SDFIELD
    - Do not delete the allocations.
    - Double-check the online documentation for *Check Prod. Allocation Assgnmt until incoming Order Date* (if you check the availability against Product Allocation)
- Run the transaction /SAPAPO/ATPQ_CHKUSG for all four options. You will probably have to extend the timeout threshold. See next section and note 676128 for details.
- Run /SAPAPO/OM17. This transaction performs a consistency check between liveCache data and APO database. See note 425825 for details.

Depending on the release and versions, some tools mentioned above should be only used when there is no activity on the system. See the following sections for details.

Performance of Product Allocation reports:

As of SAP SCM 5.1, when calling different reports of the product allocation, you can make the selection based on characteristic combinations. This enhancement can reduce the number of time series or characteristic combinations that you have to maintain or correct significantly.

The following reports were enhanced:

- /SAPAPO/ATPQ_PAREA_R (Copy Data from Planning Area)
- /SAPAPO/ATPQ_PAREA_W (Transfer Data to Planning Area)
- /SAPAPO/ATPQ_PAREA_C (Characteristic Combinations in the Planning):

  Faster data transfer from PAL to DP.
- /SAPAPO/ATPQ_CHKCHAR (Characteristic Combinations)
- /SAPAPO/ATPQ_COLLECT (Characteristics of Collective Product Allocations)
- /SAPAPO/ATPQ_ALERT (Shortage Check)
- /SAPAPO/ATPQ_CHKUSG (Product Allocation Assignment Check):

  Only check relevant characteristic combinations and/or correct only erroneous characteristic combinations much faster.
- /SAPAPO/ATPQ_KCGRP_U (Product Allocation Assignment Update)

SAP R/3 DB and SAP APO liveCache

/SAPAPO/CIF_DELTAREPORT3

(Prerequisites: SAP R/3 Plug-In 2001.2 and SAP APO 3.1)

The report /SAPAPO/CIF_DELTAREPORT3 is used to compare transactional data from the SAP R/3 DB with SAP APO liveCache.

This report should be scheduled at least once a week. By checking the log, you can determine if inconsistencies exist between the SAP R/3 DB and SAP APO liveCache, and therefore if the report has to be restarted in online mode.

Automated Monitoring of the result log of the /SAPAPO/CIF_DELTAREPORT3 is possible with the Solution Manager and an active Business Process Monitoring Solution. If any errors are found during the consistency check, it is possible to automatically create alerts within the Solution Manager and also to send notification via e-mail or SAP system messages for example to a member of the responsible monitoring team.

Iteration functionality (Online and Background)
With SAP notes 496779 and 488747 applied, the iteration functions for the CIF_DELTAREPORT3 are implemented. Due to long delta report runtimes, objects may have been changed and may no longer be inconsistent. Temporary data inconsistencies occur during the transfer of data between SAP APO and SAP R/3 and disappear again after the transfer. Note, however, that in the case of lengthy transfers, inconsistencies may still be displayed as errors.
You should use the iteration for the online comparison and for the comparison in the background, as well as when saving and loading results.
When using the online comparison, the user should interactively compare the displayed incorrect objects from the result list again (iteratively) after the DELTAREPORT3 has performed a comparison and displayed the result. If you execute the iteration several times in a row, you can further minimize the number of errors caused by temporary data inconsistencies.
For the comparison in the background, saving the results, and loading the results, set the indicator *Iteration*. In this case, the system automatically executes the iteration when saving and loading the results. Then, temporary errors or already solved errors are cleansed and don't appear in the result list anymore. As a next step a manual triggering of the update of the errors is performed.
You can also use the iteration after the reconciliation to check whether the correction was successful or not. In this way you can determine whether an error still exists after the reconciliation or not.

For more information on Data Consistency and DELTAREPORT3, see the Best Practice Document *Data Consistency for SAP APO / SAP SCM***.**

Recommendation:
When using the /SAPAPO/CIF_DELTAREPORT3 for sales orders/deliveries, it is recommended to set the flag *Use Table VBBE for Sales Order Comparison,* resulting in a much better performance.

If this variant is selected, it is a prerequisite to run first:

- SDRQCR21 in simulation mode; if incorrect requirements exist, run SDRQCR21 again with data transfer (this is only possible, if there is no system activity with sales orders/deliveries)
- Or if preferred, run new SDRQCR21 directly with *processing per position* in update mode on the SAP R/3 / ECC side, to be sure that the requirements situation is correct in the primary system.

Then, run /SAPAPO/CIF_DELTAREPORT3 on APO/SCM side.

If skipping the prerequisite, inconsistencies from ECC can be transferred to SCM as follow-up errors generating a business impact, for example:

- The BOP runs are executed on the basis of defective data
- ATP over confirmations (= negative ATP / negative cumulated ATP)
- ATP under confirmations

For details, see the next section *Inconsistencies of SD Requirements in R/3*

Check Frequency

The external consistency check for sales orders/deliveries should be checked by this procedure typically once per week.

Inconsistencies of SD Requirements in R/3

Remark:
The following is only valid for SDRQCR21 using the option *Processing for material*.
If you select the *Processing for material* parameter, the report saves the requirements (database commit) one after the other for each material/plant, instead of saving all the requirements in one step. Correspondingly, the log issued by the report is also sorted according to material and plant.

Using the new version of report SDRQCR21 (=with *processing per position*) means “processing per line item”. If you select this, the commit is done per document or per position (depending on the selection parameters). Therefore flag *processing per material* can not be selected anymore for "new" SDRQCR21.

Advantages of SDRQCR21 *Processing per position*

- A selection and/or correction is also possible by document number and/or document date within a much shorter runtime.
- Using *Locked mode* means it can run in parallel to business activities in the system
- Regarding the processing per item in non-locked mode, the consistency check is a lot more reliable than the former SDRQCR21. The probability of error for each item is very low. Nevertheless, 100% correctness can only be reached with the locked mode (probability zero).

For details, see the following SAP Notes:

- 25444 SDRQCR21: Recovery of sales and delivery requirements,
- 547277 FAQ: Requirements in SD and in the delivery for related information
- 998102 SDRQCR21: Enhancements to support the check in locked mode

Check Frequency
Run the report SDRQCR21 at least weekly or once a day if needed. You can always run the report on demand, selecting as little data as required, for example, selecting affected sales order document numbers only. If necessary due to system activities, run the report with the flag *Processing per position*.

Remark: It is recommended to check that your system is running with the new version of report SDRQCR21: With the implementation of new SDRQCR21 by note 998102, transaction SNOTE will implement two prerequisite notes, namely 1023543 and 997573 if still missing.

/SAPAPO/SDRQCR21

This report corrects incorrect sales order and delivery (requirements) in SAP R/3 / ECC and SAP APO/SCM. Use this report if the /SAPAPO/CIF_DELTAREPORT3 report cannot correct all inconsistencies. /SAPAPO/SDRQCR21 checks more precisely and also can check the SD order tables.

Inconsistencies can basically occur due to:

- program errors
- manually deleted Queues (for example, because of non resolved SYSFAIL queues)
- Modifications/ User-exits

Comparison of /SAPAPO/SDRQCR21 and DELTAREPORT3:

/SAPAPO/SDRQCR21 checks more precisely and also can check the SD order tables. Use this report if the /SAPAPO/CIF_DELTAREPORT3 report cannot correct the inconsistencies. Check that all notes from composite note 607742 are applied.

If you run the report /SAPAPO/SDRQCR21 regularly, you do not need to run the report /SAPAPO/CIF_DELTAREPORT3 for sales orders, as this is already carried out by the report /SAPAPO/SDRQCR21. There is one exception: /SAPAPO/SDRQCR21 does not check inactive integration models. Only the DELTAREPORT3 selects orders which are in active and inactive I-models. Therefore, you should run the DELTAREPORT3 for sales orders from time to time to perform a data cleansing.

Further, if you run report SRDQCR21 regularly on SAP R/3 or SAP ECC, you can set the flag *read requirements from table VBBE* to improve the runtime of the report /SAPAPO/SDRQCR21 significantly.

If you are using the backorder processing (BOP), you should use this report to check the consistency of the SD job tables (/SAPAPO/POSMAPN, /SAPAPO/ARDADM_I, /SAPAPO/SCHEDLIN, /SAPAPO/SDQTVB...). BOP relies on these tables being consistent. The DELTAREPORT3 does not include these checks. For more information, refer to SAP Note 444641.

In addition, you can also use this report to detect and correct inconsistencies in the product allocation assignments. To do this, set the *Check Product Allocation Assignments* indicator.

Recent enhancements of /SAPAPO/SDRQCR21 (by SAP note 987299):

The redesign of report SDRQCR21 resulted in a complete new coding compared to the previous version of SDRQCR21 with respect to regenerating the requirements. To avoid redundancy, a new common interface was created and /SAPAPO/SDRQCR21 will use the coding of the new version of SDRQCR21.

In addition, the following improvements were integrated into /SAPAPO/SDRQCR21:

1. The possibility to check specific order numbers or order items.
2. Iteration (quite similar to the iteration of the DELTAREPORT)
   The report first selects orders in SCM, then in R/3 and compares the selected orders. A new check is triggered in case of inconsistencies until the inconsistencies disappear or the maximum number of iterations is reached.
   A waiting time(s) can be defined from one iteration step to the next.
3. Table /SAPAPO/OBREF (document flow) was only checked for RBA subitems. With SAP note 987299, the report can find and correct a wrong document flow including document flow from Stock Transfer Orders to deliveries.
4. More accurate evaluation and correction of Product Allocation Assignments.
5. For performance reasons when selecting Product Allocation, it is possible to exclude fully delivered orders and/or only to check Sales Orders or Stock Transfer Orders. Example: If no product allocation is used for STOs, you can switch this off at the /SAPAPO/SDRQCR21. Then, it is not necessary to read all the MM-tables (and vice versa).
6. Redesign of the requirement recompilation
   If you use the option to build requirements from the document flow, a very long runtime may occur and the requirements are re-created without document blocks. Therefore, inconsistencies may occur during the operation. With the new version of the report for which notes 998102 and 1023543 are prerequisites, a new logic for recompiling requirements is introduced. The following new switches are available which allow you to use the report during system operation.
   The first Flag 'Lock documents...' sets a document block if the requirements from table VBBE are rewritten in the R/3 system. This prevents the document from being changed at the same time.
   The second flag writes a planning file entry (net change per material/plant) in the R/3 system if the requirement situation has changed. The next MRP reads this and plans accordingly.

For more details, see the report documentation in note 987299 and the F1 help for the individual entry and selection parameters in your SAP APO system.

Caution: If this report is not executed in test mode and without the iteration functionality or the Flag 'Lock documents...', it should only run at a time when no change is made to sales and distribution documents in the system.

Reorganization

Deleting BOP runs

The saved backorder processing results should be deleted at regular time intervals using the report /SAPAPO/BOP_DELETE (for example, everything more than five days old).

Recommendation:

Define a variant for the report /SAPAPO/BOP_DELETE using the following selections as a minimum:

- *Backorder Processing Status*: " " = Buffer (B), Initialization (I), Simulation (S) and Update ended (X) statuses are selected
- *Created on*: Today's date – x days (define *Created on* as a selection variable and use the function *Dynamic date calculation* for this selection variable)

Schedule a job once a day using this variant.

Backorder processing with the status Update (U) can only be deleted online using this report. Any resulting data inconsistencies should also be removed using the procedure described above. Temporary Quantity Assignments caused by backorder processing are also deleted by /SAPAPO/BOP_DELETE.

You can also use the Business Process Monitoring in the Solution manager to monitor the following status of BOP runs automatically: Status Initialization (I), Buffer (B), and Update (U).

Deleting ATP Alerts

If ATP Alert Indicators are set in the used check instructions, an alert will be written in the APO database (for example, demand by sales order exceeds available quantity/forecast or shortage of product allocation group and so on) or liveCache (for example, PP/DS alerts generated by Multi Level ATP or Capable-to-Promise). As there is no fixed connection between an ATP alert and a sales document, deleting a sales document or a sales item will not delete the ATP alert. Therefore it is necessary to delete old generated ATP alerts regularly (for example, weekly) using the report /SAPAPO/AMON_REORG. For a more detailed description; when ATP alerts are generated, refer to SAP Note 500889; for Tips and Tricks for Handling the Alert Monitor using the releases APO 3.x, refer to SAP Note 495166. For the Alert Monitor with releases SCM 4.0 and higher check consulting note 830673.

Deleting SAP ECC Data that is no Longer Required in SAP APO/SCM System

SAP SCM database tables expand with data from transferred SAP R/3 documents by time. However, this data is no longer required for closed documents, where no corresponding information exists in liveCache anymore. For such documents, compared and due to the R/3 archiving concept which keeps the information, the SCM table information is no longer required.

The performance of the initial data supply, other transfer processes and mass processing transactions/reports with a high data volume is affected negatively. See SAP Note 504620 for further explanation.

Run the SCM report /SAPAPO/SDORDER_DEL regularly to delete SAP R/3 document data that is no longer required in SAP APO/SCM. Make sure that all notes from composite SAP Note 553476 are implemented. Check SAP Note 657214 /SAPAPO/SDORDER_DEL: Documentation and usability.

Note that as of SCM 4.0 the report has a new selection screen. Therefore, according to your release, refer to SAP Notes
546459 /SAPAPO/SDORDER_DEL: Performance and recommendations or
894294 /SAPAPO/SDORDER_DEL: Performance and advice (as of SCM 4.0)

Depending on the data volume and table growth, run the report, for example, weekly or monthly. Typically, tables /SAPAPO/POSMAPN, /SAPAPO/ORDADM_I, /SAPAPO/ORDPART and /SAPAPO/ORD_LINK have several million entries; table /SAPAPO/SDFIELD has up to several hundred million entries.

Performance issues with /SAPAPO/SDORDER_DEL (for example, runtime is **longer** than one or several days or database-related short dumps like DBIF_DSQL2_CONNECTERR), typically occur because the SD-tables in APO have grown very large and you did not run the report for a long time. Therefore, first check if you have **applied notes 1086364 and 1061860**. If this is not sufficient, evaluate if table /SAPAPO/CIFLOOKU contains a large number of records that do not refer to sales orders. Then, you can use report ZAPO_LOOKU_PURGE (note 997241) in addition to handle this table also for orders other than sales orders.

Note that //SDORDER_DEL should not run in parallel to ZAPO_LOOKU_PURGE because they can delete the same entries in tables /SAPAPO/CIFLOOKU and /SAPAPO/CIFBEFCR, thus DEADLOCK situations can occur!

Note that it also recommended to schedule the report ZAPO_BEFCRIT_LOOKU_ADJUST to clean up table /SAPAPO/CIFBEFCR in accordance with table /SAPAPO/CIFLOOKU. See notes; 567601 (Unnecessary entries in the table /SAPAPO/CIFBEFCR) and 1085987 (Performance problems with report ZAPO_BEFCRIT_LOOKU_ADJUST).

Otherwise, evaluate if running the faster version ZRD_SDORDER_DEL provided by SAP note 1008133 is of benefit. The following report versions are available for the different releases:

- ZRD_SDORDER_DEL30 for APO 3.x
- ZRD_SDORDER_DEL41 for SCM 4.1.
- /SAPAPO/ZRD_SDORDER_DEL as of SCM 5.0:
  Considers new release dependant extended functions, see note 1008133)

The runtime of report ZRD_SDORDER_DEL is 10 to 100 times faster than report /SAPAPO/SDORDER_DEL. The performance of the report is increased by reading all data from tables /SAPAPO/POSMAPN, /SAPAPO/ORDADM_I and the liveCache table /SAPAPO/ORDMAP into the memory at once. For this reason, the report will require a lot of memory; the exact amount depends on the size of the three tables. It is likely to be about double the size of table /SAPAPO/POSMAPN.
If there is not enough system memory available the report may terminate or produce short dumps.

Therefore, the report does not cover all functionalities of report /SAPAPO/SDORDER_DEL.
The following functionalities are not covered:

- Delete inconsistencies in dependent tables
- Unconditional deletion
- Check against product allocation data
- It is not possible to limit the selection for the selective deletion to certain products or locations: The report will always remove data for all products and locations. It is only possible to limit the selection by the date of the latest change.
- The report will always do the selective deletion, the deletion of obsolete records from table /SAPAPO/POSMAPN **and** the deletion of obsolete records from table /SAPAPO/SDFIELD together (it is not possible to flag these options independently).

Deleting old technical ATP objects in LC

The report /SAPAPO/OM_REORG_DAILY is not only relevant for ATP but it deletes old technical ATP objects in LC that still use up resources unnecessarily.

- Check that all relevant notes are applied for /SAPAPO/OM_REORG_DAILY, for example performance note 908758.
- See note 679118 for the checks and reorgs that the report does.
- See note 139558 how to schedule the report during a period with lower system load.

Deleting ATP Tree Structures

(Applicable only **for release APO30A,** if Backorder processing or Multi level ATP or cross-system third-party order processing is in use)

BOP trees should be deleted via /SAPAPO/BOP_DELETE, otherwise you could get an inconsistent BOP on the database.

Only relevant for release APO30A (the normal cleanup mechanisms were improved for higher releases, however it is also to use the report in higher releases if required):
Under certain circumstances, persistent ATP tree structures exist in the database although they are no longer needed. You should delete these persistent ATP tree structures by scheduling the report /SAPAPO/DM_ATREE_REMOVE_TREES regularly (for example, daily). This irrevocably deletes ATP tree structures that are older than the time you specified in the report.

Note that the selected time for deleting the ATP tree structures should not be too short (for example, set a period of approximately 30 days). Otherwise, ATP tree structures that you still need could be deleted. If you implement backorder processing or multilevel ATP, for example, then the results that are saved in the form of ATP tree structures will be deleted as well. Therefore, the time period selected should be large enough to ensure that results still to be used are not deleted. Refer to SAP Note 374391 (only relevant for APO 3.0).

Normally ATP tree structures should be deleted automatically. ATP tree structures are no longer used if the reference to the OLTP order is missing (unknown PosGUID, for example. If the ATP tree structures remain regularly, the situation should be analyzed in detail (first check your enhancements, then open an OSS message).

A simulation mode for this report is not required as it is possible to have overview of (old) ATP trees and evaluation what the report should delete by transaction /n/SAPAPO/ATREE_DSP.

Interactive SCM-ATP from CRM 5.2

Customers that are using the enterprise service "ProductAvailabilityRequirement" or interactive SCM-ATP from CRM 5.2 or higher should execute report /SAPAPO/PRODAVREQ_CLEANUP (transaction /SAPAPO/ATPCLEAN01) regularly.

The service of new business object "ProductAvailabilityPreselection" can be applied by note 1107268 (valid for release 5.x).

Delete ATP Log

The availability check process can be logged by activating the ATP application log (transaction /SAPAPO/ATPLOG) for error analysis by technically oriented users, developers or consultants. It collects information about customizing settings, the technical and time aspects of the check as well as warnings and errors that occurred. The ATP log should only be switched on for a short time (considerable performance decrease of the system!) and only for specific users.

After finishing the analysis, it is recommended to delete the ATP application logs using transaction /SAPAPO/ATPLOG_DEL and using transaction /SAPAPO/ATPCLOG_DEL to delete the liveCache parts of all ATP logs.

Performance

General APO/SCM System Performance

Available-to-Promise is a service provided by SAP APO/SCM to any OLTP system. The performance of the service might decrease generally due to, SCM database growth or problems at liveCache. There might be network problems between OLTP and SAP APO/SCM too.

Additional Fields in the /SAPAPO/SDFIELD Structure

You are recommended to keep the number of additional fields in the /SAPAPO/SDFIELD (and in /SAPAPO/SD_DOC as of SCM4.0) structure to a minimum. Before going live, you should check again that the /SAPAPO/SDFIELD structure does not contain fields that were used for test purposes only. Refer also report /SAPAPO/SDORDER_DEL and other reorganization tools in previous sections that are performance relevant.

Switch Off ATP Log

You switch on/off the application log in parameter maintenance. You call parameter maintenance either from SAP Easy Access via *Global ATP → Environment → Application Log → Application Log Parameter Maintenance* or in Customizing for the *Advanced Planner and Optimizer (APO)* via *Global ATP → Tools → Maintain Parameters for ATP Application Log*.

See also; section *Reorganization → Delete ATP Log* for further information.

Backorder Processing

In addition to the number of schedule lines to be processed and the availability check methods used, the performance of backorder processing is influenced considerably by the CIF settings and the available work processes in SAP APO/SCM and SAP R/3 or SAP ECC. Too much parallelization by variants or automated parallelization (SCM 5.0/5.1) can lead to performance decrease and memory bottlenecks.

Alerts

The SAP APO Alert Monitor allows a management-by-exception strategy. The Alert Monitor is a stand-alone component of SAP APO/SCM that enables you to have a unified approach to handling problem situations. It notifies you if a problem occurs, for example, during an ATP check.

Too many alerts have a negative effect on system performance. You should check exactly for which check instructions alerts should be written, and restrict the number to an amount that makes sense from a business point of view.

For more information on the Alert Monitor, refer to the *Reorganization* section of this document.

Core Interface

There may be performance bottlenecks during mass data processing. Such processes include initial data supply, backorder processing and SAP R/3 document processing in background mode.

When there is a large data volume the system load is enormous. The following critical points can have a negative effect on performance:

- A lack of system load distribution of the qRFC when using outbound queues (standard system APO-CIF). You are recommended to switch over to inbound queues. For more details on changing over to inbound queues, refer to SAP Note 416475.

Note: For more information, refer to the SAP Help and the Best Practice *Manage Core Interface in SCM / APO*, which deals with the Business Process Management of the SAP APO Core Interface (CIF) and is an essential enhancement to this document. All of the jobs and monitoring activities listed in the CIF document have to be considered.

Monitoring

Core Interface

The SAP APO Core Interface (CIF) is the communication layer that enables the exchange of data between SAP APO/SCM and SAP R/3 or SAP ECC. The role of the SAP APO/SCM Core Interface is to connect SAP APO/SCM to one or more SAP R/3 or SAP ECC Systems in a tight connection.

This is a real-time interface. From the complex data quantity in SAP R/3 or SAP ECC, only the data objects that are needed for the respective planning and optimization processes in the lean SAP APO/SCM data structures have to be transferred to SAP APO/SCM.

For operations to run as smoothly as possible, it is essential that this interface is monitored.

Functions for monitoring and analyzing data transfer, data consistency and error determination are available.

There are several tools to monitor the inbound and outbound queues across the systems.
Activate and use CIF post processing (transaction /SAPAPO/CCP1 or report /SAPAPO/CIF_POSTPROCESS, available as of SCM 4.0) or use the qRFC monitors, SCM Queue Manager and Core Interface Cockpit transactions to monitor issues with erroneous queues.
It is also possible to monitor the CIF interface automatically by using the Business Process Monitor tool with the SAP Solution Manager and to create alerts and notifications in case of backlog situations or error situations.
For example, identify master data problems, correct master data and re-trigger the queues.
If stuck queues are not being resolved, the external consistency checks like the DELTAREPORT will detect inconsistencies and try to reconcile them by re-sending the information. However, this will make the problem even worse as the re-sent information will also queue up and thus only make the stuck queues even longer. Once the root cause for the congestion has been removed, it will take more time to process all accumulated queue entries.
Just deleting stuck queues is not recommended at all, though it might be possible afterwards to process all waiting queue entries and reconcile inconsistencies using the DELTAREPORT. However, in many cases the records sent by DELTAREPORT will get stuck again if the error root cause is not eliminated.

Note: For more information, refer to the SAP Help and the Best Practice *Manage Core Interface in SCM / APO*, which deals with the Business Process Management of the SAP APO Core Interface (CIF) and is an essential enhancement to this document. All the jobs and monitoring activities listed in the CIF document have to be considered.

Regarding Business Process Monitoring with SAP Solution Manager, you can find more information under the following link: http://service.sap.com/bpm.

Temporary Quantity Assignments

Refer to section *Consistency Checks* → *Temporary Quantity Assignments* for further information.

Alternative Concept

In this section, we discuss an alternative concept for use when SAP APO/SCM is not available for any unplanned reason. This concept uses the option of temporarily switching back to a local SAP R/3 ATP check.

Local SAP R/3 ATP Check

Prerequisites and Assumptions

This concept describes how you can perform an ATP check locally in SAP R/3, if an SAP APO/SCM system cannot be accessed or liveCache is not available in SAP APO/SCM. This description uses the following scenario:

An SAP R/3 system and an SAP APO/SCM system, but no cross-system connection from an SAP R/3 system to a SAP APO/SCM system (not a CRM scenario)

The basic idea is to perform the ATP check locally in SAP R/3 for a specific length of time (until the malfunction is corrected). This can be carried out in the following situations:

- SAP APO/SCM is not available (SAP APO is shut down or there are network problems)
- liveCache in SAP APO/SCM is not available

The following is important:
SAP R/3 ATP Customizing and SAP APO/SCM ATP Customizing must be maintained consistently (ATP check in SAP R/3 and SAP APO/SCM must use the same requirements classes, and they should have identical Customizing settings for scheduling).

Note: Before this alternative concept is applied, it must be tested. It is only by testing that you can ensure that this concept leads to results that make sense from a business point of view. You should only switch to a local ATP check in SAP R/3 for as long as is needed to remove the problem described above.

Functional Limitations

General Limitations of the Alternative Concept

- No usage of CTP (it may be conceivable to switch to SAP R/3 assembly processing for an alternative concept, but then you cannot return to SAP APO/SCM)
- No check against product allocations if the product allocation is configured in SAP APO/SCM
- No multilevel ATP
- No check against Rules (for example, PPM, Characteristics substitution)
- Objects originally created in SAP APO/SCM (for example, planned orders, purchase requisitions created from planning) and not replicated in the SAP R/3 or SAP ECC system remain in SAP APO/SCM and will not be taken into account when change point is in use.

Detailed Process Description

The alternative concept involves the following four steps:

- Switch from the ATP check in SAP APO/SCM to the ATP check in SAP R/3 by deactivating relevant integration models.
- Local ATP check in SAP R/3 (essentially the product availability check) for the length of time in which SAP APO is not available
- Switch from the ATP check in SAP R/3 to the ATP check in SAP APO by activating relevant integration models.
- Post processing of documents to guarantee SAP APO ATP functions by running back order processing or manually ATP check for effected documents.

Switch from the ATP Check in SAP APO to the ATP Check in SAP R/3

Deactivate the ATP check in SAP APO by deactivating the integration model. A separate integration model should be defined that only contains the ATP check switch. The sales orders must still exist in an active integration model. Meanwhile the CIF queue must be stopped.

During LC-Recovery the system automatically generates STOP entries in the CIF queues. These STOP entries will not allow the deactivation or activation of integration models using transaction CFM2 (Report RIMODACT). Transaction CFM3 (Report RIMODAC2) has to be used instead. If RIMODAC2 is used in Batch the flag *ignore incorrect queues* has to be set.

If there are examples of backorder processing in SAP APO that are not yet updated, these should be deleted.

Local ATP Check in SAP R/3 (essentially the product availability check) for the Length of Time in which SAP APO is not available

During the local check in SAP R/3, new or changed sales orders are buffered in the CIF.

Switch from the ATP Check in SAP R/3 to the ATP Check in SAP APO/SCM

This is the most critical activity. The CIF queue must be restarted after the SAP APO system is recovered. Before switching to the Global ATP check in SAP APO (reactivating the ATP integration model), you should make sure that the CIF queue has been processed completely. Depending on the volume (duration of the malfunction and the respective quantity volumes), this can last for a long time.

An ATP check should **not** be performed while the integration model “ATP” is reactivated, otherwise the ATP check can produce incorrect results (an over-confirmation, if sales orders have not yet been transferred).

- Defensive strategy: Transfer sales orders first → under-confirmation
- Optimistic strategy: Transfer stocks and planned orders first, then sales orders

Post processing of Sales Orders to Guarantee Consistency

To guarantee the APO ATP functions again for all ATP-relevant documents, a total backorder processing should be triggered as soon as possible in SAP APO/SCM. This would be advisable during the first night after reactivation of SAP APO/SCM. The backorder processing results should be reviewed.

Further Information

Dependencies

Remember that there are dependencies (date and time, logical sequence) to business processes not mentioned in this document. These usually comprise, for example:

- General SAP R/3 or SAP ECC system administration, (this also applies to the SAP R/3 basis of the SAP APO system), for example:
  - Reorganization of jobs, spool entries and so on
  - Database offline backup – During an offline database backup, no online or background activity is possible. Therefore, times for such backups must be scheduled carefully.
  - Archiving of database transaction logs
  - Updating table statistics for the database cost-based optimizer – You should not run this activity at times when application programs are likely to be creating, deleting, or updating many table entries.
- General SAP APO-specific system administration:
  - On going backup and monitoring activities for liveCache
- Transfer of master data from SAP R/3 or SAP ECC to SAP APO/SCM:
  - Initial transfer of master data records
  - Delta transfer of new master data records
  - Transfer of changes made to existing master data records. You should not transfer large packages of master data to SAP APO when CIF is needed for the transfer of transactional data, because this can overload CIF and cause an unwanted communication delay.

As a result, program scheduling management and the software monitoring group must plan and schedule system maintenance activities at appropriate times (for example, during the night or over the weekend if possible), so that all the work necessary for your company's core business process can be performed in the time frames determined by the business process champions. In addition, certain activities – in particular, background jobs – must be started only after the respective preceding activity has finished.

Troubleshooting

If executing this Best Practice did not produce the desired results, proceed as follows:

- See the *Troubleshooting Guide for Integration APO (CIF)*, which you can find in SAP Service Marketplace → Media Center SAP R/3 Plug-In → *Literature SAP R/3 Plug-in*
- Search for related SAP Notes
- Open an SAP customer message describing your problem

Literature

For more detailed information about how to administer an SAP NetWeaver System, see:

- Frank Föse, Sigrid Hagemann, Liane Will, *SAP NetWeaver AS ABAP – System Administration*, 2008

For information about the administration of SAP APO systems, see:

- Liane Will, *SAP APO System Administration*, 2002

For information about how to monitor and tune general system performance, see:

- Thomas Schneider, *SAP Performance Optimization Guide*, 2008

For background information on administrative tasks with emphasis on system planning and setup, see:

- Hartwig Brand, *SAP R/3 Implementation with ASAP*, 1999

Other Best Practice Documents

In SAP Service Marketplace, quick link /SCM → *Related Topics* → *Best Practices for Solution Management:* SAP SCM, you can find several Best Practice Documents for Solution Management similar to this one. In particular, there is *Monitoring and Administration for SCM / APO*, which helps you analyzing the workload and performance on liveCache and the APO database.
Furthermore, there is *Manage APO Core Interface in SAP SCM* which deals with the Business Process Management of the APO Core Interface CIF and is an essential enhancement to this document. All the jobs and monitoring activities listed in the CIF document have to be considered in every business process step listed above that sends or receives data through CIF.
Data Consistency for SAP APO / SAP SCM helps you to ensure consistency between SAP APO and your OLTP system and consistency within your SAP APO system by describing the necessary tools and measures.
Document *Manage Supply Network Planning & CTM in SAP SCM / SAP APO* deals with the operation procedures related to the APO Supply Network Planning component. *Manage Demand Planning in SAP SCM / SAP APO* accordingly discusses the operation of Demand Planning processes.
Furthermore, there is *Manage Production Planning SAP SCM / SAP APO* for the Production Planning and Detailed Scheduling part and *Manage the Transportation Management Solution in SAP SCM / SAP APO* for the APO TP/VS module.

Background Information and References

SAP Documentation

You can find both the German and English versions of the SAP APO 3.x, SAP SCM 4.x, and SCM 5.x documentation in the SAP Help Portal → *Documentation* → *SAP Business Suite* → *My Supply Chain Management* or on CD. Print files (PDF format) of several chapters (in both languages) can also be found in the Media Center of the SAP Marketplace for SCM. (SAP Service Marketplace, Alias SCM)

Customer Messages

In case of a product error or issue, you can open a message at http://service.sap.com/message. Refer to note 36677 Structure of components for customer messages. Select the right SCM-APO-ATP* component.

SAP Notes

See also http://service.sap.com/notes (SAP Service Marketplace, Alias NOTES)

The following SAP Notes contain useful information on the performance of SAP APO:

- 609435 Composite SAP Note: Performance Backorder Processing
- 610704: Composite SAP Note: Performance of SD documents update in APO

The following (composite) SAP Notes contain useful information on various Global ATP issues:

- 375193 Backorder processing: Composite SAP note updating
- 382746 Shipment and transportation scheduling with APO
- 382746 Collective note: Delivery + transportation scheduling with APO
- 383648 Shipment scheduling as of APO 3.0A: Consulting notes
- 389618 Composite Note: APO initial supply with sales orders
- 420606 Collective SAP Note for GATP performance in APO 3.0A
- 420598 Collective SAP Note for GATP performance in APO 3.1

- 420605 Composite SAP Note for BOP performance in APO 3.0A
- 425825 Consistency checks, /sapapo/om17, /sapapo/cif_deltareport
- 488725 FAQ: Temporary quantity assignments in Global ATP
- 501446 List of all composite SAP notes for APO ATP
- 501880 Allocations: Composite SAP note to connect Demand Planning (Releases 3.0A, 3.1)
- 503158 Allocations: Composite SAP note (Releases 3.0A, 3.1)
- 548845 Internal modes uses more than 2 GB (SYSTEM_IMODE_TOO_LARGE)
- 650449 Collective note for GATP Performance in SCM 4.0
- 654312 Release Restrictions for SCM 4.0
- 713429 Release Restrictions for SCM 4.1
- 806562 Collective note for GATP Performance in SCM 4.1
- 832393 Release Restrictions for SCM 5.0
- 873689 Collective note for GATP Performance in SCM 5.0
- 1105656 FAQ: Order due lists in SCM
- 1130360 EDQA and ODL with sub-location
- 1021662 Release Restrictions for SCM 2007
- 1107268 Product Availability Preselection
- 1151090 Follow-up processing for temporary quantity
- 1086885 FAQ Comp PAL check in CTP

Feedback and Questions

Send any feedback by writing an SAP customer message to component SV-SMG-SER. You can do this at http://service.sap.com/message. (SAP Service Marketplace, Alias MESSAGE)

Appendix

Overview: Regular Jobs and Monitoring Tasks

In order to ensure a proper Global ATP check, certain jobs must be scheduled on a regular basis. These jobs are:

Monitoring Object	Monitor TA/Tool	Monitor Freq.	Monitoring Activity or Error Handling Procedure	Respon-sibility	Escalation Procedure
Temporary Quantity Assignments (TQA)	/SAPAPO/AC06	Daily/ Weekly	Determine if there are wrong temporary quantity assignments If yes, delete manually. In addition, check if report /SAPAPO/OM_DELTA_REMOVE_OLDER is running as scheduled.	Application support	Contact process champion
APO report /SAPAPO/CIF_DELTAREPORT3	SM37, Solution Manager (BP&Imon)	Daily/ Weekly	This report identifies and corrects inconsistencies between R/3 DB and APO liveCache. Check if job is running as scheduled and checks the job log for inconsistencies.	Program scheduling management	Contact software monitoring team
Previous Backorder processing runs	/SAPAPO/BOP_DELETE	Weekly	This report deletes results of BOP runs, check if job is running as scheduled.	Program scheduling management	Contact software monitoring team
Product Allocation groups and assignments	/SAPAPO/ATPQ_CHKUSG	Weekly	Control Product allocation assignments.	Application support	Contact process champion
APO report /SAPAPO/SDORDER_DEL	SM37	Weekly	This report deletes SAP R/3 document data no longer used and checks if the job is running as scheduled See SAP Note 504620	Program scheduling management	Contact software monitoring team
APO report /SAPAPO/AMON_REORG	SM37	Weekly	This report deletes alerts and checks if the job is running as scheduled	Program scheduling management	Contact software monitoring team
APO report /SAPAPO/SDRQCR21 and R/3 report SDRQCR21	SM37	Weekly	This report corrects incorrect sales order requirements and product allocation assignments in R/3 and APO. Checks if the job is running as scheduled and reviews the log and reacts if necessary.	Program scheduling management	Contact software monitoring team
Several LiveCache Objects	/SAPAPO/OM17, Solution Manager (BP&Imon)	Weekly	This transaction performs a consistency check between live cache data and APO database.	Program scheduling management	Contact software monitoring team

Monitoring Object	Monitor TA/Tool	Monitor Freq.	Monitoring Activity or Error Handling Procedure	Respon-sibility	Escalation Procedure
APO report /SAPAPO/OM_REORG_DAILY	SM37	Daily (during lower system load)	This report deletes, for example, old technical objects in LC. Checks the job log for critical messages and reacts if necessary.	Program scheduling management	Contact software monitoring team
APO report /SAPAPO/DM_ATREE_REMOVE_TREES	SM37	Weekly	This report deletes generated ATP tree, checks if the job is running as scheduled. Review the log and react accordingly. This report is was designed for APO 30A, but it can also run in higher releases (see above *Deleting ATP Tree Structures*	Program scheduling management	Contact software monitoring team
APO report /SAPAPO/PRODAVREQ_CLEANUP This report is ONLY relevant for interactive GATP from CRM 5.2 or Service "ProductAvailabilityPreselection".	/SAPAPO/ATPCLEAN01	Weekly	This report deletes generated ATP tree, checks if the job is running as scheduled. Reviews the log and reacts accordingly.	Program scheduling management	Contact software monitoring team
APO report RSARFCEX	SM58	Every hour or more frequently	This report processes transactional RFCs (TQAs left due to locking problem). See section RSARFCEX how to schedule the report depending on GATP load.	Program scheduling management	Contact software monitoring team

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