



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

Best Practice for Solution Management

*Version Date: March 2004
Valid for SAP APO 3.0A, 3.1 and mySAP SCM 4.0, 4.1
The updated version of this Best Practice can always be
obtained through the SAP Solution Manager*

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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** and the **SAP Advanced Planning and Optimization (SAP APO 3.0, 3.1 or mySAP SCM 4.0, 4.1)**.

This concept aims to:

- Define procedures for monitoring, error handling, and escalation management for the *Global Available-to-Promise* service
- Define the roles and responsibilities for all persons 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 process that uses the Global ATP service.

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, taken together, 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:

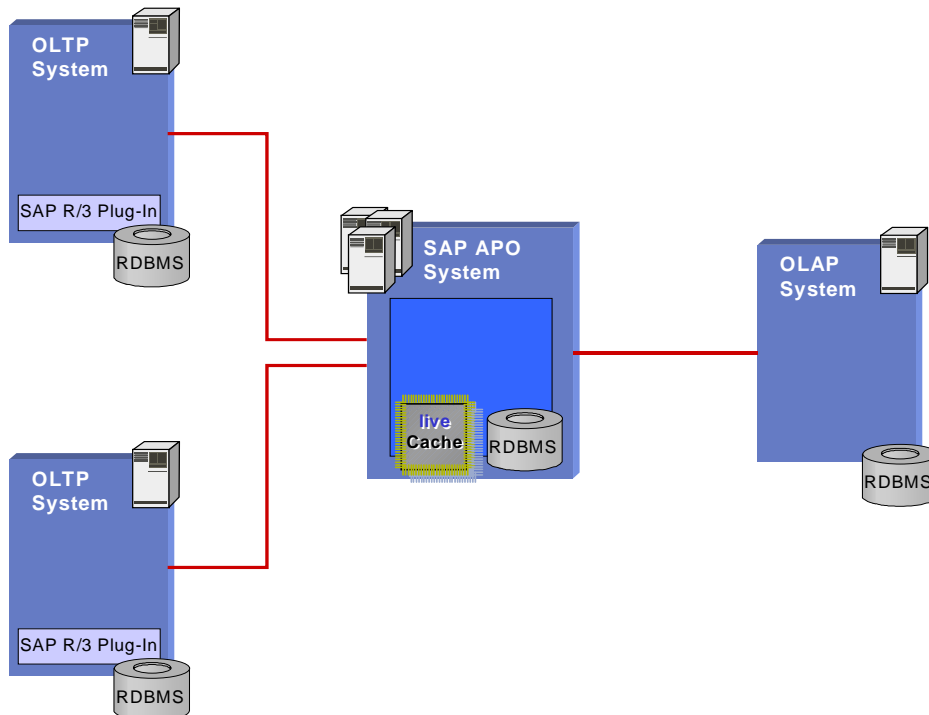
- ❑ BC355 APO System Administration
- ❑ AP205 APO Integration
- ❑ AP230 APO Global ATP

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.

<p>SAP APO System</p>	<p>The SAP Advanced Planning and Optimization System facilitates the strategic, tactical, and operational planning processes.</p> <p>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.</p>
<p>OLTP System</p>	<p>The Online Transaction Processing system covers functionality for sales and distribution, material and inventory management, controlling, shop floor control, logistics execution, and so on.</p>
<p>OLAP System</p>	<p>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 <i>product allocations</i>.</p>



Global Available-to-Promise (Global ATP)

Increasingly, companies operating worldwide are forced to globalize available information in order 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 as quickly as possible. Global ATP is one of the central services of SAP APO that utilizes liveCache, a technology in which data is stored in the form of time series.

Global ATP uses the following basic methods:

- Product availability check
- Check against product allocations
- Check against the forecast

It uses the following advanced availability check methods:

- Combination of basic methods
- Rules-based ATP (RBA)
- Capable-to-Promise (CTP)
- Multilevel ATP (MATP) [not Available in APO 3.0A]
- Correlation Calculation

Before performing this Best Practice, ensure that you carry out the following preliminary tasks or checks in the system:

- You have successfully installed an SAP R/3 for release: 3.1I, 4.0B, 4.5B, 4.6B, 4.6C or 4.7
- You have successfully installed an SAP APO for release 3.0, 3.1 or mySAP SCM 4.0, 4.1
- You have installed the R/3 Add-on APO CIF in SAP R/3
- You made the default settings for the CIF integration function
- You generated and activated integration models
- You have made the relevant ATP Customizing settings in SAP R/3 and SAP APO
- You transferred SAP R/3 ATP Customizing to SAP APO and then set the *Import Customizing* switch in SAP APO to *Not allowed*

Note: As the Core Interface is an essential component of SAP APO 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 and the SAP R/3 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.

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.

Day-to-Day Business

Jobs

Backorder processing (BOP)

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

Two functions, with different execution options, are available for processing backorders in SAP APO:

- Background backorder processing (SAPAPO/BOP)
- Interactive backorder processing (SAPAPO/BOPI)

For more information on backorder processing, see SAP Library:

http://help.sap.com/saphelp_apo31ca/helpdata/en/9c/066f3928025a6ee10000000a114084/content.htm

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 online processing is taking place; this is not mandatory, but is recommended. If possible, no BOP runs should be run in parallel. If it is absolutely necessary that several jobs are run in parallel using BOP, you should try to define the filters as individually as possible (even if, when using multilevel ATP, you cannot rule out that the same sales order items are nevertheless checked by various parallel BOP runs).

Consistency Checks

Temporary quantity assignments

The entries in /SAPAPO/AC06 should be monitored regularly (for example, weekly). Older entries (for example, several days old) can be deleted either manually or using /SAPAPO/OM_DELTA_REMOVE_OLDER.
(The report /SAPAPO/BOP_DELETE deletes entries from backorder processing.)

Recommendation:

- Normal records: Delete all records more than one day old
- Other records (persistent): Depending on the scenario
Example: For backorder processing with post-processing, delete entries older than the average duration between backorder processing execution and backorder processing update

SAP R/3 DB and SAP APO liveCache

/SAPAPO/CIF_DELTAREPORT3

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

The report should be scheduled 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.

To reduce the runtime when checking Sales Orders you are recommended to run the report with the option "Use Table VBBE for Sales Order comparison" flagged. If this variant is selected it is a prerequisite to run SDRQCR21 first on the SAP R/3 side in simulation mode, to be sure that the requirements situation is correct in the primary system. (If incorrect requirements exist, run SDRQCR21 again with data transfer before executing /SAPAPO/CIF_DELTAREPORT3 on APO side. For details, see SAP Note 25444.)

For more information on /SAPAPO/CIF_DELTAREPORT3 see the SAP Online Help or the program documentation.

For more information on Data Consistency see the [Best Practice Document](#) dedicated to this topic.

/SAPAPO/SDRQCR21

The /SAPAPO/SDRQCR21 report corrects incorrect sales order requirements and product allocation assignments in R/3 and APO. These inconsistencies can occur due to program errors or by deleting queue entries.

Use the report if the /sapapo/cif_deltareport3 report cannot correct the inconsistencies.

If you are using the backorder processing (BOP), you can use this report to check the consistency of the SD job tables (//posmapn, //ordadm_i, //schedlin, //sdqtvb ...). BOP relies on these tables being consistent. The deltareport3 does not include these checks.

For more information please refer to SAP Note 444641 [valid for SAP APO 3.x and mySAP SCM 4.x]

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 15 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. Any resulting data inconsistencies should also be removed using the procedure described above.

Deleting alerts

Shortage alerts for the check against product allocations and the product availability check are always created in the case of a shortage situation, and when the ATP alert indicator is activated in the check instructions. A shortage situation only arises if the receipt, which contributed to the confirmation for a confirmed and saved sales order, is subsequently unavailable. For a more detailed description of the ATP alerts, see SAP Note 500889.

The ATP alerts generated should be deleted regularly from the database (for example, weekly).

The following alternatives are available for deleting DB alerts:

- In the display structure of the Alert Monitor, select the alerts that you would like to delete and choose *Delete Alerts*.
- Use the report /SAPAPO/AMON_REORG. In this case, remove the flag *Simulation Run*, so that the alerts can be deleted. The corrections from SAP Note 433082 have to be implemented in the system.

Deleting SAP R/3 data no longer required in SAP APO system

In SAP APO database tables, the tables expand with data from SAP R/3 documents. However, this data is no longer required; no corresponding information exists in liveCache. In addition, the performance of the initial data supply or of other transfer processes with a high data volume is affected negatively.

You can use the report /SAPAPO/SDORDER_DEL to delete SAP R/3 document data that is no longer required in SAP APO (for example, monthly). Refer SAP Note 504620.

Performance

Additional fields in the /SAPAPO/SDFIELD structure

You are recommended to keep the number of additional fields in the /SAPAPO/SDFIELD 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.

BOP

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 and SAP R/3. See below under *CIF*.

Alerts

The SAP APO Alert Monitor allows a management-by-exception strategy. The Alert Monitor is a stand-alone component of SAP APO 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.

Product availability alerts are written to the database. However, alerts from the check against product allocations or the check against the forecast are not.

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, see the SAP APO documentation under *Supply Chain Monitoring – Alert Monitor*.

CIF

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, see SAP Note 416475.
- Too much old data in the SAP APO database tables. Since existing data for the relevant SAP R/3 documents is read first during the update in the SAP APO system, the size of specific database tables influences performance. The reorganization report /SAPAPO/SDORDER_DEL should be run regularly.

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.

Monitoring

CIF

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

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

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

As of SAP R/3 Plug-In 2000.1, functions for monitoring and analyzing data transfer, data consistency, and error determination are available.

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.

Alternative Concept

In this section, we discuss an alternative concept for use when SAP APO 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 system cannot be accessed or *liveCache* is not available in SAP APO. This description uses the following scenario:

An SAP R/3 system and an SAP APO system, but no cross-system connection from an SAP R/3 system to a SAP APO 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 is not available (SAP APO is shut down, or there are network problems)
- *liveCache* in SAP APO is not available

The following is important:

SAP R/3 ATP Customizing and SAP APO ATP Customizing must be maintained consistently (ATP check in SAP R/3 and SAP APO 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)
- No check against product allocations
- No multilevel ATP [SAP 3.1 and SCM 4.x]

Limitations during the time the ATP check is performed in R/3

- ATP functions only available in SAP APO, such as RBA, and Product Allocation are not possible.
- In the ATP check in SAP R/3, objects originally created in SAP APO (planned orders, purchase requisitions created from planning, SAP APO >= 3.1 scheduling agreements,...) cannot be taken into account

Detailed Process Description

The alternative concept involves the following four steps:

- Switch from the ATP check in SAP APO to the ATP check in SAP R/3
- 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
- Post processing of sales orders to guarantee SAP APO ATP functions

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. 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 / 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

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 overconfirmation, if sales orders have not yet been transferred).

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

Postprocessing of sales orders to guarantee SAP APO ATP functions

To guarantee the APO ATP functions again for all sales orders, a total backorder processing should be triggered as soon as possible in SAP APO. This may be best during the first night after reactivation of SAP APO.

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 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:
 - Checkpoint writing for liveCache – You should not start a checkpoint during long-running background or online activities, because the checkpoint has to wait for the completion of the activity. In addition, all other users that require liveCache data have to wait for the completion of the checkpoint.
 - Backup for liveCache
- Transfer of master data from SAP R/3 to SAP APO:
 - 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.

Because of these dependencies, online and background application system activity cannot always occur when required, but may need to wait, for example, for the completion of administration activity. In SAP APO, avoid letting long-running planning activities collide with SAP APO checkpoint writing, because this can cause long wait situations for online users.

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 Integration R/3 – APO**, which you can find in SAP Service Marketplace in the [Media Center](#) of the R/3 Plug-In Homepage
- Search for related [SAP Notes](#)
- Open an SAP customer message describing your problem

Best Practice Documents

In SAPNet, under alias [solutionmanagerbp](#) → *Availability*, you can find several Best Practice Documents for Solution Management that are similar to this one.

Background Information and References

SAP Documentation

You can find both the German and English versions of the SAP APO 3.0, 3.1 and mySAP SCM 4.0, 4.1 documentation in the [SAP Help Portal](#), 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)

SAP SCM Support Package Information

A general overview of current versions, minimum requirements and version history of the components SAP BASIS, SAP ABA, SAP BW, SAP Kernel, SAP frontend, SAP APO liveCache/COM and SAP APO Optimizer is now immediately available via the following link:

<http://service.sap.com/scm>

- mySAP SCM Technology
 - Availability of mySAP SCM Support Packages : SAP APO SPs, SAP liveCache and COM Builds, SAP EM, R/3 Plug-In
 - Overview Matrix SAP SCM 4.0 SP, liveCache, Optimizer, XI Content versions
 - Support Packages : SAP APO 3.x, liveCache, COM and Optimizer

Note also the platform prerequisites which are available in the Service Marketplace via the following link: <http://service.sap.com/scm>

- mySAP SCM Technology
 - DB & OS Platforms and System Requirements

Supported DB & OS Platforms & System Requirements: SAP APO 3.0 and SAP APO 3.1**Supported DB & OS Platforms & System Requirements: SAP SCM 4.0 and SAP SCM 4.1****SAP Notes**

(See also <https://websmp103.sap-ag.de/notes> ((SAP Service Marketplace, Alias NOTES))

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

- **370601: Composite SAP Note: Performance APO 3.0A and 3.1**
- **440670: Version 2 to note 370601 performance APO 3.0A**
- **609435: Composite SAP Note: Performance Backorder Processing**
- **610704: Composite SAP Note: Performance of SD documents update in APO**
- **420669: Composite SAP note: General performance improvements APO 3.0A**

See the [Best Practice Document](#) dedicated to CIF for SAP Notes with information on qRFC and CIF.

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

- **501446 List of all composite SAP notes for APO ATP**
- 490478 Prerequisites for using APO 3.1
- 503158 Allocations: Composite SAP note (Releases 3.0A, 3.1)
- 501880 Allocations: Composite SAP note to connect Demand Planning (Releases 3.0A, 3.1)
- 440179 Global ATP in APO (Releases 3.0A, 3.1)
- 382746 Shipment and transportation scheduling with APO
- 383648 Shipment scheduling as of APO 3.0A: Consulting notes
- 375193 Backorder processing: Composite SAP note updating
- 389618 APO initial supply with sales orders

Feedback and Questions

Send any feedback by writing an SAP customer message to component SV-GST-SMC. You can do this at <https://websmp103.sap-ag.de/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.	Indicator or Error	Monitoring Activity or Error Handling Procedure	Responsibility	Escalation Procedure
Temporary Quantity Assignments	/SAPAPO/AC06	Weekly		Determine if there are wrong temporary quantity assignments If yes, delete manually or use report /SAPAPO/OM_DELTA_REMOVE_OLDER	Application support	Contact process champion
APO report /SAPAPO/CIF_DELTA REPORT Data consistency R/3 DB – APO liveCache	SM37	Weekly	Status	Check if job is running as scheduled Check the job log for inconsistencies	Program scheduling management	Contact software monitoring team
APO report /SAPAPO/BOP_DELETE This report deletes results of BOP runs	SM37	Daily		Check if job is running as scheduled	Program scheduling management	Contact software monitoring team
APO report /SAPAPO/SDORDER_DEL This report deletes SAP R/3 document data no longer used	SM37	Monthly	Status	Check if job is running as scheduled See SAP Note 504620	Program scheduling management	Contact software monitoring team
APO report /SAPAPO/AMON_REORG This report deletes Alert Monitor alerts	SM37	Weekly	Status	Check if job is running as scheduled	Program scheduling management	Contact software monitoring team
/SAPAPO/SDRQCR21 This report corrects incorrect sales order requirements and product allocation assignments in R/3 and APO.	SM37	Weekly		Check if job is running as scheduled	Program scheduling management	Contact software monitoring team

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