Best Practice

Trouble Shooting for Business Process Monitoring in SAP Solution Manager

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SOLUTION MANAGEMENT PHASE Operations & Continuous Improvement
SAP SOLUTION Generic Best Practices
TOPIC AREA Solution Monitoring
SOLUTION MANAGER AREA Business Process Monitoring
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1 Summary

This document describes the trouble shooting procedures for the Business Process and Interface Monitoring infrastructure in SAP Solution Manager.

1.1 Goal of Using this Service

Using this document enables you to start trouble shooting if the Business Process and Interface Monitoring functionality in SAP Solution Manager is not behaving as expected.

1.2 Staff and Skills Requirements

This Best Practice can be applied by a person who is familiar with the Business Process Monitoring infrastructure in SAP Solution Manager. This person should have a general understanding of the content of the Setup Guide for Business Process Monitoring available in http://service.sap.com/bpm.

Please also consider the additional information of chapter 3 on how to use this document.

1.3 System Requirements

This guide describes trouble shooting for BPMon as of SAP Solution Manager 7.0, Enhancement Pack 1, SPS23, and ST-A/PI01M on the managed system. Although many aspects of trouble shooting are also relevant for older versions of SAP Solution Manager, there may be deviations to what is described in this document.

1.4 Changes to previous versions

This is the first version of the BPMon trouble shooting guide.
2 Background Information

2.1 Background Information for the Business Process Monitoring (BPMon) infrastructure

In order to be able to execute a root cause analysis for problems with Business Process Monitoring in SAP Solution Manager, you need to understand its general infrastructure.

The following software components contain parts of the BPMon infrastructure:

SAP Solution Manager system:

- **ST**
  - contains the coding of the BPMon engine, including the coding to trigger the data collection, the scheduling table that determines which data collection is supposed to run when and the table to receive the alert information after the data collection has run
  - contains the functionality to display BPMon alerts, e.g. the work center for Business Process Operations
- **ST-SER**
  - contains the setup functionality for BPMon, including the BPMon Setup session
- **ST-A/PI**
  - contains coding of the BPMon engine for application monitors, including scheduling mechanisms for application monitors

Managed System (sometimes also referred to as monitored system):

- **ST-PI**
  - contains the data collectors for the functionalities for application log monitoring, background job monitoring, due list log monitoring and update error monitoring
• ST-A/PI
  
  o contains the data collectors for all monitoring functionalities of type ‘Application Monitors’, including the data collectors for Throughput and Backlog Indicators (TBIs), Interface Monitoring objects and Data Consistency Monitoring objects.

The BPMon engine on SAP Solution Manager is started periodically via the AUTOABAP which in turn is part of the CCMS of SAP Solution Manager. Because of historical reasons, BPMon alert information is also stored in the CCMS on SAP Solution Manager (in parallel, at the same time the alert information is stored in the BPMon tables in ST). The CCMS on SAP Solution Manager provides an interface to the CCMS on the managed system, enabling BPMon to also display alerts determined via the CCMS on the managed system (without data collectors stored in ST-PI or ST-A/PI).

For all these infrastructure components to smoothly work together, the technical prerequisites details in SAP note 784752 need to be fulfilled. In particular, you need:

• A so-called ‘local RFC destination’ on the SAP Solution Manager system. This RFC destination must be called “BPM_LOCAL_<client>” (see transaction SM59).

Configuration of RFC Connections

<table>
<thead>
<tr>
<th>RFC Connections</th>
<th>Type</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOFT_L0XI</td>
<td>3</td>
<td>as ADFCPRC, client 000 for BAdt-Tools</td>
</tr>
<tr>
<td>SI_CLNT001</td>
<td>3</td>
<td>My SAP BW System (Created by Diagnostics Setup)</td>
</tr>
<tr>
<td>BPM_LOCAL 200</td>
<td>3</td>
<td>BPM LOCAL</td>
</tr>
</tbody>
</table>

It must point to the BPMon client of SAP Solution Manager and must contain a user (usually SM_BPMO) that has the profile S_CSMREG and the roles SAP_IDOC_EVERYONE and SAP_SUPPDESK_CREATE assigned.
In addition, this user needs to be assigned to the same time zone as the SAP Solution Manager system itself. Observe that no entry in the personal time zone means that the default “CET” is used.

Please observe that the BPM_LOCAL RFC destination MUST NOT contain server information or a system number.

- A READ RFC destination from the SAP Solution Manager system to the managed system. This RFC destination is used to start the data collection on the managed system. The RFC destination needs to be assigned in column “RFC Read Access” (tab “Clients”) for the respective system in the System Landscape Maintenance of SAP Solution Manager.
The user in this RFC destination needs to have profile S_CSMREG assigned for the data collection. If IDoc monitoring, file monitoring or retail monitoring are expected to be used, additional authorizations may be necessary. Check SAP note 784752 for details.

- An RFC destination to be used by dialog users logging in to the managed system from the SAP Solution Manager system. This RFC destination is used by the end users that react to BPMon alerts and need to log on to the managed system to execute their error handling. The RFC destination needs to be assigned in column “RFC for Solution Manager” (tab “Clients”) for the respective system in the System Landscape Maintenance of SAP Solution Manager.

This RFC destination should not contain a user. Instead, users should log in with their own user credentials, either via a logon screen (LOGIN destination) or via security certificates (TRUSTED destination).

Please observe that all other prerequisites of SAP note 784752 also need to be fulfilled.

### 2.2 Infrastructure for BPMon Setup

When setting up BPMon in SAP Solution Manager, the setup follows the following procedure:
Only the configuration steps executed in the BPMon Setup session are steps exclusively connected to BPMon. All other configuration steps take place in other SAP Solution Manager functionalities. For information about the different steps within the setup procedure, please see the Setup Guide for Business Process Monitoring in [http://service.sap.com/bpm](http://service.sap.com/bpm).

**Important information concerning the setup steps**

**Step: Create Solution**

When you create a solution, it automatically gets a so-called **Solution Monitoring ID** (or **Solution_MonID**) assigned. This is an internal number that uniquely identifies the solution within the BPMon infrastructure on SAP Solution Manager. To find out what the Solution_MonID of your solution is, execute the following steps:

1. Access the BPMon Setup session for your solution.
2. Once you are in the session, select **Goto → Technical Functions → Attribute Editor** from the SAP Menu.
This will open a new window for the attribute editor. Here, open the tree to SESSION → GENERAL → Solution_Mon_ID. The attribute value displayed in field ‘Tool’ for that node is the Solution MonID for your solution.

<table>
<thead>
<tr>
<th>Attribute Editor</th>
<th>Attribute environment</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;SESSION&gt;</code></td>
<td><code>&lt;GENERAL&gt;</code></td>
</tr>
<tr>
<td><code>&lt;Solution_Mon_ID&gt;</code></td>
<td><code>&lt;Solution_MonID&gt;</code></td>
</tr>
</tbody>
</table>

The Solution MonID is a 36 digit number according to the following naming convention:

- `<Solution Manager SID>/<ID>/<Solution Manager installation number>_`<ID>

**Step: Configure Monitoring Customizing**

With the configuration of the monitoring customizing, the respective entries are stored in cluster tables of the Solution Directory in SAP Solution Manager.

**Step: Generate**

With the generation of the monitoring customizing the BPMon session for the concerned business process is created. Until the monitoring has been generated for a business process at least once, the BPMon session for that process does not exist on the SAP Solution Manager system.

When the monitoring customizing is generated, the configuration data is written into cluster tables of the BPMon infrastructure in SAP Solution Manager. At this point, the so-called Monitoring ID (or MonID) is assigned for each configured monitoring object. This is an internal 15-digit number that uniquely (per Solution Manager system) identifies the monitoring object within the BPMon infrastructure. This monitoring ID can only be displayed AFTER the monitoring for the involved business process has been activated.

To display the MonID, access the BPMon session and go to node ‘Activation’. There, in tab ‘MTE Info’ you find the list of all MonIDs available in the solution. You can identify the relevant MonID via the SID (of the managed system), Monitoring Type, Alert Type and Alert Name.
Another way to determine the MonID for a particular monitoring object is the access the node for one of the key figures of the monitoring object. There, select Goto → Technical Information from the SAP Menu.

This opens a pop-up with the technical information for that node. The context instance consists of 3 numbers. The middle number is the MonID for the involved monitoring object.
Step: Activate

With the activation of the monitoring customizing, various steps are executed:

1. Information concerning each configured monitoring object is written into table `DSWP_BPM_MON_OBJ` on the SAP Solution Manager system. This table contains the information about all monitoring objects that are configured on this SAP Solution Manager system. In addition to the Solution_MonID and the MonID for the monitoring object, information such as the involved...
managed system/client and the activation status for the monitoring object are stored here.

```plaintext
| SOLUTION | /
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MONID</td>
<td>0000000667126888</td>
</tr>
<tr>
<td>MONY</td>
<td>APPMOM</td>
</tr>
<tr>
<td>STD</td>
<td>BPP</td>
</tr>
<tr>
<td>MANDT</td>
<td>010</td>
</tr>
<tr>
<td>SESSNO</td>
<td>20000006651022</td>
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<tr>
<td>OBECTNO</td>
<td>127</td>
</tr>
<tr>
<td>JOBDOCID</td>
<td>A</td>
</tr>
<tr>
<td>MON STATUS</td>
<td>A</td>
</tr>
<tr>
<td>EXT STATUS</td>
<td>0</td>
</tr>
<tr>
<td>LOGCOMP</td>
<td>5</td>
</tr>
<tr>
<td>STYPE</td>
<td>5</td>
</tr>
<tr>
<td>DATAETR</td>
<td>A</td>
</tr>
</tbody>
</table>
```

2. Information concerning the scheduling of the data collection for each monitoring object is written into table **DSWP_BPM_TIMESCH** on SAP Solution Manager. This table contains the information about all active monitoring objects on this SAP Solution Manager and their scheduling for data collection. In particular you can see the date and time for the next scheduled data collection here.

```plaintext
| SOLUTION | /
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MONY</td>
<td>APPMOM</td>
</tr>
<tr>
<td>MONID</td>
<td>000005209420900</td>
</tr>
<tr>
<td>NEXTDATE</td>
<td>15.09.2010</td>
</tr>
<tr>
<td>NEXTTIME</td>
<td>16:00:00</td>
</tr>
<tr>
<td>PERIOD</td>
<td>3:00</td>
</tr>
<tr>
<td>MONOBJ</td>
<td>KS0006001</td>
</tr>
<tr>
<td>WSCHEID</td>
<td>11111100</td>
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<tr>
<td>CLIENT</td>
<td>B00</td>
</tr>
<tr>
<td>BTC RUN</td>
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<tr>
<td>STARTTIME</td>
<td>00:00:00</td>
</tr>
<tr>
<td>ENDTIME</td>
<td>23:59:59</td>
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<tr>
<td>CUPID</td>
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<td>RELDAYMONTH</td>
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<td>CUPID REMOTE</td>
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<td>SCHED TYPE</td>
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<td>RMONID</td>
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</tr>
<tr>
<td>RUNTIME</td>
<td>0</td>
</tr>
<tr>
<td>DEPENDTYPE</td>
<td></td>
</tr>
</tbody>
</table>
```
3. MTEs for the solution and for the configured monitoring objects of the solution are created in the CCMS of SAP Solution Manager. The MTEs are created in CCMS context ‘BPM’.

For monitoring type “Update Errors” the MTE is not created in the CCMS of the SAP Solution Manager, but in the CCMS of the managed system. In addition, if pre-existing MTEs from the CCMS of the managed system are included in the BPMon configuration, theses MTE’s are not replicated to the SAP Solution Manager CCMS but continue to exist on the CCMS of the managed system.

4. If not already scheduled, background job SM:REORG BPMON ALERTS for alert reorganization on the SAP Solution Manager system is scheduled to run once per day at night. The job is entered into table DSWPJOB on SAP Solution Manager for this, from where job SM:SCHEDULER schedules the BPMon reorganization job according to the start time and period stored in the corresponding table entry.

5. Selfmonitoring for the BPMon infrastructure is activated.

2.3 Infrastructure for BPMon Data Collection and Alert Processing

For understanding how the BPMon infrastructure looks like for the data collection and alert processing, you have to differentiate between two cases:

- The data collection is triggered via the central CCMS on SAP Solution Manager. This is the most common case.
- The data collection is executed by the local CCMS on the managed system. This case is only relevant for monitoring types ‘Update Errors’ and ‘CCMS Monitor’.

2.3.1 Monitoring via the central CCMS

This chapter describes how the BPMon infrastructure works for the following monitoring functionalities:

- Application Monitors (i.e. all monitors contained within the application monitoring framework)
- Background Job Monitoring
- Application Log Monitoring
Every 5 minutes the AUTOABAP runs as part of the CCMS of the SAP Solution Manager system. The AUTOABAP runs under user SAPSYS in client 000 of the SAP Solution Manager. This user checks whether or not a data collection for Business Process Monitoring is due. If a data collection is due, the user SAPSYS executes an RFC call via the local RFC destination (named BPM_LOCAL_<client>) to start the BPMon engine in the BPMon client of SAP Solution Manager. The BPMon engine now runs with the user maintained in the local RFC destination, usually user SM_BPMO.

The BPMon engine now checks which data collections are due according to the scheduling information maintained in table DSWP_BPM_TIMESCH. For those data monitoring objects where the data collection is due (date and time for next data collection is in the past), the engine triggers RFC calls for the data collection on the managed system (via asynchronous RFC). The number of calls triggered in parallel depends on the RFC server group settings maintained in the BPMon Setup session (node Basic Settings → Solution Specific Settings) and transaction RZ12 in SAP Solution Manager.
The function module executing the data collection of the monitoring object on the managed system is called with the selection criteria configured for the monitoring object and the key figures. It is called via the READ RFC destination assigned to the managed system (usually destination SM_<SID>CLNT<Client>_READ), meaning that the data collection is executed on the managed system by the user maintained in this RFC destination, using a dialog work process. The data collection determines the measured value and in most cases (i.e. for the application monitors) the alert rating is determined during the data collection as well.

Once the data collection has been completed, the alert rating and the measured value are transferred back to the BPMon engine in SAP Solution Manager.

For monitoring objects of type ‘Application Monitors’ an additional scenario is possible. These monitoring objects provide a wide range of monitoring functionalities with various selection criteria. However, based on the size of the involved application tables on the managed system, the complexity of the configured selection criteria for the monitoring object and the availability of suitable indexes on the managed system the duration of the data collection cannot always be projected. Consequently, in particular situations it may occur that the data collection for these monitoring objects runs for a long time (many minutes). Since the data collection in the above described scenario is executed in a dialog work process on the managed system, it is liable to a time out if the defined maximum runtime for a dialog work process has been exceeded (parameter rdisp/max_wprun_time). To ensure that these long-running data collections can be executed nonetheless, the BPMon infrastructure provides the possibility to execute the data collection via a background job. The respective flag ‘DC in Background’ has to be set for each monitoring object in tab ‘Monitoring Schedule’.

If there are monitoring objects configured where a data collection is supposed to the executed in background, the BPMon engine schedules background job BPM_DATA_COLLECTION_1 on the managed system the first time the engine is started after the activation. This background job runs every 5 minutes with the user maintained in the READ destination and handles all data collections that are due and supposed to be executed in background. If the runtime of the background job takes too long, a second background job BPM_DATA_COLLECTION_2 is scheduled ad-hoc to parallelize the data collection.

The results of this background data collection are saved in an ST-A/PI cluster table on the managed system. The next time the BPMon engine is triggered, it recognizes that a data collection in background is due. Instead of triggering the data collection again, the BPMon engine triggers an RFC call to read the result of the data collection (i.e. alert rating, measured value etc.) from the result table. After the information has been read from the result table, the data is deleted there to avoid unnecessary data growth.

Regardless of whether the data was collected directly or in background, once the alert is created on SAP Solution Manager it is stored there in table DSWP_BPM_ALERTS. This table is the central alert storage of the BPMon engine. All BPMon alerts are stored here until they are reorganized by background job SM:REORG BPMON ALERTS. The alert information is stored per Solution_MonID, MonID, alert type, and
alert time stamp and contains information such as: alert rating, measured value, thresholds against which the measured value was compared, alert text, notification status and alert confirmation status. The moment the alert is stored in table DSWP_BPM_ALERTS it is visible in the work center for Business Process Operations and in the Business Process Monitoring session.

For historic reasons, the alert information is also replicated to the respective MTE in the CCMS.

After the alert has been created, the alert post processing starts. The BPMon engine checks whether or not the thresholds for sending notification emails or for creating SAP Service Desk messages have been exceeded by the number of alerts and triggers the sending of an email via SAPConnect (transaction SCOT) or creates a SAP Service Desk message. If notifications or service desk messages are created, the respective statuses for the involved alerts are updated in table DSWP_BPM_ALERTS using the following fields: SUPNOTF_STATUS for the service desk messages (storing the message number in field SUPNOTF_NUM) and ANOTF_STATUS for email notifications.

Please observe that the user executing the BPMon engine (usually SM_BPMO) needs to have sufficient authorizations to create emails (role SAP_IDOC_EVERYONE) or SAP Service Desk messages (role SAP_SUPPDESK_CREATE). Both roles have to be generated in their current version.

2.3.2 Monitoring via the local CCMS

For monitoring types ‘Update Errors’ and ‘CCMS Monitor’ the data collection is not triggered by the BPMon engine but runs independently according to its own scheduling mechanisms. Alerts are created according to the logic of the respective CCMS data collection method. The BPMon engine checks for results for these monitoring types each time it runs. If new alert information is found, the alert data is transferred to table DSWP_BPM_ALERTS. It is not replicated to the CCMS of SAP Solution Manager.

Once the alert has been created in table DSWP_BPM_ALERTS, the further processing (emails, service desk messages) is executed as described in the previous scenario.

2.4 Handling of Alerts

Once you get an email or a service desk message notifying you about a BPMon alert, you can access the alert information via the work center for Business Process Operations.

You can access the alert details and the alert history via the Alert Inbox in the work center or via the Business Process Monitoring session for the involved business process. In both cases the alert information is displayed according to the information stored in table DSWP_BPM_ALERTS.

The current status for a key figure is the status of the most current alert for this key figure, while the open status is the highest status of all unconfirmed alerts for this key figure that are stored in table DSWP_BPM_ALERTS.
You can use the ‘Detail Info’ list functionality for your alert or execute one of the configured analysis transactions to display details on the managed system. In both cases the managed system is accessed via the configured RFC destination for dialog logon. If the error handling does not solve the alert situation, you can manually create an SAP Service Desk message for one or several alerts. In this case, the fields SUPNOTF_STATUS and SUPNOTF_NUM in table DSWP_BPM_ALERTS are updated accordingly. If an alert situation has been solved, you can confirm the alert. With this, field ALERTCONFSTATUS for the concerned alert entries is set to ‘9’ and the alert entry is no longer considered for the determination of the ‘open status’ of the alert.

2.5 Further Information

The following documents should be considered when you have general questions about how to configure Business Process Monitoring in SAP Solution Manager or when you have questions concerning particular monitoring functionalities. All of these documents are available in section ‘Technical Information’ of the media library in http://service.sap.com/bpm:

- Setup Guide – Business Process Monitoring
- Setup Guide- Application Monitoring
- Setup Guide – Interface Monitoring

In addition, the media library provides a setup guide for BW reporting for BPMon alerts. This guide provides its own trouble shooting section.
3 How to use this document

The infrastructure of Business Process Monitoring in SAP Solution Manager is very complex. Configuration errors in one small part of the BPMon infrastructure can lead to huge problems for various parts of the monitoring functionalities.

This document summarizes the experiences gathered in the SAP Backoffice for Business Process Monitoring in SAP Solution Manager. It gives a guideline how to analyze a problem with Business Process Monitoring to determine the underlying root cause and potentially solve the problem:

1. This document should be used if you have experienced a problem with BPMon in SAP Solution Manager.

2. If you have experienced a problem, determine at which step of the BPMon lifecycle the problem occurred and of what type the problem is:
   a. During the Configuration of BPMon:
      i. General errors in the BPMon Setup session
      ii. Errors in the monitoring configuration concerning specific monitoring objects
      iii. Errors in the generation of monitoring customizing
      iv. Errors in the activation of monitoring customizing
   b. During active usage BPMon
      i. General errors in the BPMon Data Collection
      ii. Errors in the data collection for specific monitoring objects
      iii. Errors in the alert post processing (Notifications sending)
      iv. Errors in the handling of alerts (in the Work Center for Business Process Operations and the BPMon session)

3. In the respective area check which problem description best fits your observed problem.

   For all described problem situations, the first starting point should be to verify whether all technical prerequisites (as described in SAP note 784752) are fulfilled. The next step should be to verify the customized BPMon configuration (in the BPMon session).

   Only after these two steps have been fulfilled should the analysis procedure described for the error scenario be executed.

   In case you have experienced problems only with a specific monitoring functionality always also check the solution procedures of the corresponding generic problems, as the observed problem may be a generic problem that only manifested itself for a specific monitoring object.

4. For most problem situations several root causes and therefore solutions are possible. Go through these solutions from the top down to rule out one root cause after the other.
Please keep in mind that the suggested analysis procedure is not guaranteed to solve the problem situation. If the situation could not be solved by applying the suggested procedures, please search for suitable SAP notes and open a customer message on component SV-SMG-MON-BPM to get SAP’s help in solving the problem.

This trouble shooting guide is aimed towards people familiar with Business Process Monitoring in SAP Solution Manager. Therefore, vocabulary concerning BPMon as well as the general setup procedure are not explained here in detail. This means for instance that this guide assumes that you know how to generate monitoring customizing or how to access the BPMon Setup session. In case of questions please refer to the BPMon Setup Guide available in http://service.sap.com/bpm.
4 Errors in the Configuration of BPMon

This chapter describes error scenarios that occurred during the configuration of Business Process Monitoring in SAP Solution Manager. It differentiates between generic errors (not linked to any monitoring functionality) and errors linked to a specific monitoring functionality.

4.1 General Errors in the BPMon Setup session

4.1.1 BPMon Setup session is not there

Symptom: You try to access the BPMon Setup session for your solution. There is no BPMon Setup session available.

Possible Root Cause: A BPMon Setup session for a solution is created when a logical component is assigned to that solution. Until you assign a logical component, there is no BPMon Setup session available for your solution.

Solution: In the solution directory assign a logical component to your solution.

If a logical component is already assigned, but still there is no BPMon Setup session available, check for the BPMon Setup session in trouble shooting transaction DSA. To do so, call transaction /nDSA and flag ‘Selected sessions’. Enter your solution name in field ‘Description’ and session package CP_BPM. Afterwards choose ‘Display’.

If the session is available for your solution, the session will be displayed on the left-hand-side of the screen.

If the session is available there but not accessible from within your solution, check whether you are using the correct solution to access the session.

4.1.2 BPMon Setup session dumps when navigating in the session

Symptom: When navigating in the BPMon Setup session, an ABAP short dump occurs in one of the nodes.
Possible Root Cause:

When a new version of add-on ST-SER is implemented on SAP Solution Manager, it can contain new definitions for the BPMon Setup session. Normally these new definitions are considered in the BPMon Setup session by automatically re-initializing the session as part of the ST-SER implementation. If this re-initialization did not take place, short dumps can occur.

Solution:

Re-initialize the BPMon Setup session manually by accessing the session and then calling Session components → Re-initialize in the SAP menu.

4.1.3 BPMon Setup session dumps when opening the session

Symptom:

When opening the BPMon Setup session, an ABAP short dump occurs.

Possible Root Cause:

When a new version of add-on ST-SER is implemented on SAP Solution Manager, it can contain new definitions for the BPMon Setup session. Normally these new definitions are considered in the BPMon Setup session by automatically re-initializing the session as part of the ST-SER implementation. If this re-initialization did not take place, short dumps can occur.

Solution:

Re-initialize the BPMon Setup session manually by calling trouble shooting transaction /nDSA. There, flag ‘Selected sessions’ and enter the name of your solution in field ‘Description’ (wildcards possible) and ‘CP_BPM’ in field ‘Session Package’. Afterwards, choose ‘Display’.

In the following screen, select the session number to display the session details on the right-hand side.
There, select the icon for the lower node ‘Setup Business Process Monitoring’ and select button ‘Session components’ ➔ ‘Reset’ to re-initialize the BPMon Setup session.

Alternatively you can also reset the session in this screen by executing a right-mouse-click on the lower node ‘Business Process Monitoring Setup’ and choosing ‘Session Components’ ➔ ‘Reset’.

4.1.4 Texts within the BPMon Setup session look strange

Symptom:
When navigating in the BPMon Setup session, texts in the session nodes are not always correctly displayed.

Possible Root Cause:
When a new version of add-on ST-SER is implemented on SAP Solution Manager, it can contain new texts for the BPMon Setup session. Normally these new texts are considered in the BPMon Setup session by automatically re-initializing the session as part of the ST-SER implementation. If this re-initialization did not take place, texts may be truncated or missing.

Solution:
Re-initialize the BPMon Setup session manually by accessing the session and then calling Session components ➔ Re-initialize in the SAP menu.
4.1.5 Node ‘Local RFC Destination for Data Collection’ shows a red icon

Symptom:
You are in the process of configuring BPMon in the BPMon setup session. You notice that the status in node Basic Settings → Local RFC Destination shows a red alert.

Possible Root Cause:
The RFC destination BPM_LOCAL_<client> does not exist or does not contain a user.

Solution:
The missing or erroneous RFC destination does not have any impact on the configuration of BPMon. However, it needs to be created and configured before the monitoring customizing can be generated and activated. See the Setup Guide for Business Process Monitoring available in http://service.sap.com/bpm for details.

4.1.6 Value help for Contacts does not contain any Entries

Symptom:
You are in node ‘Solution Support Organization’ → ‘Team <team name>’ in the BPMon Setup session. In there, you are trying to assign a team member. The value help for the contacts is empty and you cannot enter a name here directly.

Possible Root Cause:
The value help for the team members is filled from the list of contacts maintained in the solution directory. Most likely, no contacts have been entered there.
Solution:

Go to the contact maintenance in the solution directory (button ‘Contacts’). Enter your contact information here. Afterwards, the value help in the BPMon Setup session should be filled.

4.2 Errors concerning specific Monitoring Objects

4.2.1 Application Monitoring Object missing in the list of selectable Monitoring Types

Symptom:

You want to configure an application monitor within BPMon. In node <business process step>/<interface> you have selected monitoring types. Regardless of which monitoring types you choose, the required monitoring object is not in the value help for ‘Monitor Name’ in sub-node ‘Application Monitors’.

Possible Root Causes:

If an application monitor is not available in the BPMon Setup session, the reason is that the application monitor is not known in the Central Application Monitoring Repository of the BPMon infrastructure. This can have several root causes.

1. The reload of the application monitors into the Central Application Monitoring Repository for the involved managed system has not been executed. To solve this situation, see Solution 1. The procedure described in solution 1 should always be the first step executed in case such an error exists.

2. The missing application monitor is not available for the available managed system. To verify this, check the list of available monitoring functionalities in the media library http://service.sap.com/bpm. Observe that availability depends on the version of the implemented ST-A/PI as well on the product and release of the managed system (e.g. SCM monitors are not available on ERP; monitors requiring SAP Basis 7.0 are not available on SA Basis 6.20 etc.). To solve this situation, see Solution 2.

3. Some application monitors are available only as of a certain (Basis or Application) support package in the managed system. Coding for these monitors is delivered as commented coding within the ST-A/PI. During the implementation of a new ST-A/PI, procedures after add-on implementation (as described in SAP note 69455) have to be executed, during which the coding for these monitors is uncommented and activated if the support package level of the relevant software component is sufficient. If these “procedures after add-on implementation” have not been executed, the coding remains inactive and thus the application monitor is not available in the BPMon Setup session. An example for a monitoring functionality where this can occur is the object “Workflow Monitoring – SAP Basis release dependant”. Call transaction ST13 on the managed system. There, execute tool RTCCTOOL. In the result screen, check the status for ‘Proc. after addon impl’. If this status is red, the procedures after add-on implementation have not yet been executed. To solve this situation, see Solution 3.
Solution 1:

In the BPMon Setup session go to node `Basis Settings → Update Central Application Monitoring Repository`. There, choose ‘Load Monitors’.

In the following pop-up, select the relevant managed system (when in doubt, select all systems) and confirm your entries.

Solution 2:

If the missing monitoring functionality is part of a newer version of the ST-A/PI, implement the newest ST-A/PI on the managed system and executed the procedures after add-on implementation (RTCCTOOL in transaction ST13).

Afterwards, update the central application monitoring repository as described in solution 1.

Solution 3:

Call transaction ST13 on the managed system and execute tool RTCCTOOL. There, choose button ‘Addons&Upgr.’

In the following pop-up, select button ‘Procedure after addon implementation’ to start the procedures. Consider SAP note 1384471 in case of error messages “Report /SSA/** cannot be uncommented”.

Afterwards, update the central application monitoring repository as described in solution 1.
4.2.2 Value help for a Parameter in Application Monitor brings no Results

_**Symptom:**_

You are configuring a monitoring object of type ‘Application Monitor’. Within the monitoring object, you maintain selection criteria. These selection criteria have a value help assigned. However, when you execute the value help, no values are provided.

_**Possible Root Causes:**_

There are several root causes possible.

1. The value help does not work because an RFC problem has occurred. In this case you get an error message indicating an RFC problem at the bottom of the screen. To solve this situation, see the solution provided for problem 4.2.3.

2. The value help does not work because there is no value help implemented for the concerned parameter. Sometimes the BPMon infrastructure shows a value help, although there is no value help available for the parameter. Refer to the respective Setup Guide in [http://service.sap.com/bpm](http://service.sap.com/bpm) to check whether the monitoring object supports value helps.

4.2.3 Value help for an Application Monitor brings an RFC Error Message

_**Symptom:**_

You are configuring a monitoring object of type ‘Application Monitor’. Within the monitoring object, you maintain selection criteria via a value help. When executing the value help, you get an RFC error message.

_**Possible Root Cause:**_

There are several root causes possible:

1. There is no RFC destination maintained for dialog logon to the managed system. The value help for application monitors is executed via the RFC destination for dialog logon. If this RFC destination has not been assigned, the value help will not work.

   To solve the situation, see Solution 1.

2. The configured LOGON RFC destination is faulty. It points to a wrong system or client, or has a user maintained that does not have sufficient authorization to access the value help. To verify this, call check the RFC destination that is maintained as Logon destination (configured in SMSY) in transaction SM59. To solve the situation, see Solution 2.

3. The logon happens via trusted RFC destinations. The trusted relationship between the SAP Solution Manager and the managed system is either incorrectly configured or your user on the managed system does not have sufficient authorization to log on via a trusted RFC destination.

   To solve the problem situation, check Solution 3.
4. Your user on the managed system does not have authorization to access the value help.

To solve this situation, check **Solution 4**.

**Solution 1:**

Call transaction SMSY and check if an RFC destination is assigned as the Logon destination (see chapter 2.1 for details which RFC destination is the one used for dialog logon). If there is no entry here, generate an RFC destination or assign an existing RFC destination.

![Transaction SMSY](image)

**Solution 2:**

Check in transaction SMSY which RFC destination is assigned as the Logon destination. Call transaction SM59 and double-click on the name of the identified RFC destination to display the details for the RFC destination.

![RFC Destination SM_TT5CLNT800_LOGIN](image)

Correct your entries so that a remote logon to the managed system from within transaction SM59 is possible.

💡 The logon RFC destination (regardless if LOGIN or TRUSTED is used) must not contain user information. Otherwise the authorization concept on the managed system is violated.

**Solution 3:**

As the scenario of the user missing authorizations to log on via trusted RFC destinations is the most likely scenario start with analyzing and potentially solving that problem. A user needs to have a special authorization object (S_RFCACL) assigned to be able to log on via a trusted RFC destination. This authorization object is not part of SAP_ALL, SAP_NEW or any SAP delivered summary role.

Check whether your user has the authorization assigned. To do so, call transaction SU01 on the managed system and display your user. In tab ‘Roles’ or tab ‘Profiles’ check whether role SAP_S_RFCACL (or a copy of this role) or profile S_RFCACL have been assigned.

If the role is assigned, check whether the role is generated. To do so, double-click on role. This brings you to the role overview of transaction PFCG. In tab ‘Authorizations’ check the status for the authorization profile of the role. If the status is not ‘Authorization profile is generated’, switch to change mode and generate the profile for this role.
Depending on the release of your managed system a user comparison may be required to ensure that the new version of the profile is considered for your user. If the tab ‘User’ shows a yellow icon, go to that tab and select button ‘User Comparison’.

In the following pop-up choose ‘Complete Comparison’.

If your user name on the SAP Solution Manager system is different than your user name on the managed system, also check whether the link between the two users is correctly configured within the role (Authorization Object ‘RFC_USER’)

IF your user has all the necessary authorizations to log in via a trusted RFC destination, check whether the trusted/trusting relationship between the SAP Solution Manager system and the managed system has been correctly configured. To check this, first call transaction SMT2 on the SAP Solution Manager system and search for an entry for your managed system. If the entry for your managed system shows a red alert, the relationship has not been correctly configured and needs to be repaired.

Afterwards, call transaction SMT1 on the managed system and check for an entry for your SAP Solution Manager system there. Execute a double-click on the SID to verify that the entry is active (flag ‘Entry inactive’ not set).

The trusted/trusting relationship between SAP Solution Manager and managed system are created centrally. For details on how to create these relationships see respective chapter in the SAP online help. Additionally, the online help also provides some general information about Trusted RFC destinations.
Solution 4:

As the value helps for different monitoring objects may require different authorization objects, the easiest way to check for limitations due to missing authorizations is to activate an authorization trace for your user in transaction ST01 of the managed system. In ST01, use the general filters to restrict the trace to your user and activate the trace. Execute the value help and then deactivate the trace. Afterwards, check if there are failed authorization checks visible in the trace. If so, assign the missing authorizations to your user.

4.2.4 Value help for a Background Job brings an RFC error message

Symptom:

You are configuring background job monitoring in the BPMon Setup session. In tab ‘Job Identification’ you want to use the Job Identification (via button ‘Save + Check Identification’). Although your job name is maintained correctly, the job identification brings no result.

Possible Root Cause:

The job identification is checked via the READ RFC destination. If this RFC destination is not correctly maintained, the job identification does not work.

Solution:

Call transaction SMSY on the SAP Solution Manager system and verify which RFC destination was maintained here as RFC for READ access. Check chapter 2.1 for details how to identify this RFC destination. If no RFC destination was assigned here, assign an existing READ RFC destination or generate a new READ RFC destination.

If there is an RFC destination assigned, call transaction SM59 on the SAP Solution Manager system and verify whether this RFC destination is correctly maintained. To do so, double-click on the name of the RFC destination. In the new screen, check in tab ‘Technical Settings’ if the target host and system number have been correctly maintained.
Afterwards, check in tab ‘Logon & Security’ if the correct user has been entered.

Make sure that a user / password and the correct client have been entered for this RFC destination.

Afterwards, check the correct functioning of the RFC destination via the SAP Menu, path Utilities → Test → Authorization Test.

Correct your entries until this authorization test works.

If the RFC destination works correctly, but the value help still does not bring results, check whether the user maintained in the READ RFC destination has the authorization profile S_CSMREG (or role SAP_S_CSMREG) assigned. If the role is assigned, make sure that the current version of the profile for the role is generated and a user comparison has been executed.
4.3 Errors when Generating Monitoring Customizing

4.3.1 Generation was only simulated

**Symptom:**

You try to generate monitoring customizing in node ‘Generation/Activation/Deactivation in the BPMon Setup session. The generation protocol displays a warning message ‘Generation just simulated.’.

**Possible Root Cause:**

The monitoring customizing can only be generated if both the business scenario and the business process have been set to status ‘Production’ in the solution directory. If either of those two statuses is still ‘planned’, the generation of the monitoring customizing is not executed, only simulated.

**Solution:**

Go to the solution directory and change the status of the business process and the business scenario to ‘Production’. The status of the business scenario can be changed in node ‘Business Scenarios’.

Afterwards, generate the monitoring customizing again.
4.3.2 Error message in the Generation Protocol

**Symptom:**
You generate monitoring customizing in node ‘Generation/Activation/Deactivation’ in the BPMon Setup session. The generation protocol displays an error message.

**Possible Root Cause:**
If the error message is not self-explanatory check the meaning of the error message via SAP Note 705569.

**Solution:**
Implement the solution described in SAP Note 705569.

4.3.3 Warning message in the Generation Protocol

**Symptom:**
You generate monitoring customizing in node ‘Generation/Activation/Deactivation’ in the BPMon Setup session. The generation protocol displays a warning message.

**Possible Root Cause:**
Depending on the error message, several root causes are possible. If the warning message is not self-explanatory check the meaning of the error message via SAP Note 705569.

**Solution:**
Implement the solution described in SAP Note 705569.

In case warning messages of the type ‘No valid monitoring objects defined for step’ or ‘No valid cust. for mon. obj.’ appear: Usually these warning messages indicate that you started to configure monitoring for a step or object, but did not complete the configuration. From a technical perspective this incomplete monitoring configuration is not a problem and these warning messages can be ignored.

4.3.4 Customizing was generated inadvertently

**Symptom:**
You generated monitoring customizing in node ‘Generation/Activation/Deactivation’ in the BPMon Setup session without meaning to. Now you would like to go back to the previous version of the generated customizing.

**Possible Root Cause:**
User handling.
Solution:

Unfortunately there is no possibility to go back to a previous version of the generated customizing. Once the new version of the customizing was generated, the old version of the generated customizing is overwritten.

However, until you activate your monitoring again, the changes in the customizing will not be considered.

4.3.5 Generation Protocol missing

Symptom:

You go to node ‘Generation/Activation/Deactivation’ in the BPMon Setup session. You would like to check the previous generation protocol. However, the node does not display a generation protocol even though the monitoring customizing is generated.

Possible Root Cause:

The generation protocol is stored in the BPMon Setup session and the application log (transaction SLG1). If the BPMon Setup session is re-initialized, the protocol in the BPMon Setup session is deleted and the entries are read again from the application log. If the application log entry is already deleted or archived, the entries cannot be read again and the generation protocol in the BPMon Setup session remains empty.

Solution:

Check whether the generation protocol is still available in transaction SLG1 of the SAP Solution Manager system. See chapter 8.2 for details how to find the correct entry in the application log. Use the Solution_MonID in the external identifier of the application log to find the correct entry.

If the generation protocol is still available in the application log, proceed as described in the solution for problem 4.1.4.

If the generation protocol is not available in the application log, the protocol will remain empty until you generate the customizing again.

4.4 Errors when Activating Monitoring Customizing

4.4.1 Error message in the Activation Protocol

Symptom:

You activate monitoring customizing in node ‘Generation/Activation/Deactivation’ in the BPMon Setup or in node ‘Activation’ in the BPMon session. The activation protocol displays error messages.

Possible Root Cause:

If the text of the error message is not self-explanatory check its meaning via SAP Note 705569.
Solution:
Implement the solution described in SAP Note 705569.

4.4.2 Warning message in the Activation Protocol

Symptom:
You are activating Business Process Monitoring (either in the BPMon Setup session or the BPMon session). The activation protocol contains warning messages.

Possible Root Cause:
If the text of the warning message is not self-explanatory check its meaning via SAP Note 705569.

Solution:
Implement the solution described in SAP Note 705569.

4.4.3 No BPMon session available for the Business Process

Symptom:
You are in the process of configuring BPMon in SAP Solution Manager. You have generated monitoring customizing. Now you would like to access the BPMon session. But there is no BPMon session available for your business process.

Possible Root Cause:
Most likely, the monitoring customizing has not been generated yet. Instead, the generation has only been simulated.

Solution:
Check the generation protocol for the business process. Check whether the monitoring customizing was generated or the generation was just simulated. If the monitoring customizing was just simulated, proceed as described in the solution for problem 4.3.1.

If the monitoring customizing was really generated, call trouble shooting transaction DSA on the SAP Solution Manager system. Choose to display selected sessions and enter the session package SOL_BPMO and your solution name in field 'Description'. Afterwards, choose 'Display'.
If the result screen shows a session, the BPMon session is there. In this case ensure that you are trying to access the BPMon session for the correct solution.

### 4.4.4 Button ‘Activate Monitoring’ missing in the BPMon Setup session

**Symptom:**

You want to activate BPMon in the BPMon Setup session in node ‘Generation/Activation/Deactivation’. However, there is no button ‘Activate Monitoring’.

**Possible Root Cause:**

Most likely, this is either a display problem within the session or the monitoring customizing has not been correctly generated.

**Solution:**

Check the generation protocol to verify if the monitoring customizing was truly generated. If the generation was just simulated, proceed as described in the solution for problem 4.3.1.

**IF** the monitoring customizing was correctly generated re-initialize the BPMon Setup session manually by accessing the session and then calling `Session components → Re-initialize` in the SAP menu.
5 Errors in the BPMon Engine or Data Collection

5.1 General Errors in the Data Collection

5.1.1 Alerts all remain in status ‘grey’

Symptom:

You have activated BPMon for a business process. The alerts stay in status grey, even though a data collection was due.

Possible Root Cause:

There are several root causes possible.

1. Alerts are available in the BPMon infrastructure but are not displayed in the BPMon session or the Alert Inbox. To solve this situation, see Solution 1.

2. Monitoring scheduling information was not correctly transferred to the BPMon infrastructure. To solve this situation, see Solution 2.

3. BPMon engine is not triggered correctly. This could be due to problems with the AUTOABAP, problems with the RFC server groups, problems with the RFC workload on the SAP Solution Manager system or problems with the workload of the CCMS. To solve this situation, see Solution 3.

4. BPMon engine runs into an error situation. This could be due to coding errors or authorization issues. To solve this situation, see Solution 4.

5. RFC destinations to the involved managed systems do not work correctly or the users within the RFC destinations do not have sufficient authorization for data collection. To solve this situation, see Solution 5.

Solution 1:

Check whether alerts are available in the BPMon infrastructure. To do so, call transaction SE16 on the SAP Solution Manager system and start the data browser for table DSWP_BPM_ALERTS. Display the table entries for the Solution_MonID of your solution (field SOLUTION).

If there are no alerts here, proceed with solution 2.

If there are alerts here, re-initialize the BPMon session by accessing the session and calling ‘Session components’ → ‘Re-initialize’ in the SAP menu.

Solution 2:

Check whether the scheduling data for the data collection was correctly transferred to the BPMon infrastructure. To do so, call transaction SE16 on the SAP Solution Manager system and start the data
browser for table DSWP_BPM_TIMESCH. Display the table entries for the Solution_MonID of your solution (field SOLUTION).

If there are no entries for your solution, generate and activate the monitoring customizing again.

If there are entries for your solution, check the dates for the next scheduled data collection for the monitoring objects (field NEXTDATE and NEXTTIME). If the next scheduled data collection for one of these monitoring objects lies more than 5 minutes in the past, check whether the BPMon engine runs correctly (see solution 3).

Solution 3:

- Firstly, check whether the AUTOABAP runs regularly. To do so, call transaction STAD on the SAP Solution Manager system. Enter ‘AUTOABAP’ in field ‘Program’ and press ‘Enter’.

In the next screen, check whether the AUTOABAP is executed by user SAPSYS every 5 minutes.
IF the AUTOABAP is not running, check the system log in transaction SM21 for reasons why the AUTOABAP has stopped running. Most likely, this is due to a lock situation. Solve the lock situation so that the AUTOABAP runs again.

IF the AUTOABAP runs every 5 minutes, check whether there are ABAP short dumps connected to the AUTOABAP or Application Log entries for user SAPSYS.

- To check for short dumps, call transaction ST22 on the SAP Solution Manager system and enter user name ‘SAPSYS’ in the selection screen. Display all short dumps for that user for the current day.

  Check for short dumps that are raised within BPMon specific coding (coding name contains string ‘BPM’).

- To check for application log entries, call transaction SLG1 on the SAP Solution Manager system. In the selection screen specify to display application log entries for object ‘SOLAR’, sub-object ‘BPMON’ and user ‘SAPSYS’.

  In the result screen, check the alert messages for the available log entries.
Solve the error situation according to the displayed error message. Most likely, the displayed problem will be either a problem with the local RFC destination or the RFC server groups.

- Problems with the local RFC destination will be displayed as error messages ‘Name or password incorrect’. Check the correct functioning of the RFC destination BPM_LOCAL-<client> via transaction SM59 (Connection test and authorization test) and repair the RFC destination if necessary.

- Problems with the RFC server group are displayed as error messages ‘No PBT resources available in system’.

In case such an error message occurs, check which RFC server group is used by your solution. To do so, call transaction SE37 and enter the function module name DSWP_BPM_GET_MON_CUST. Execute the function module in test mode.

In the selection screen enter the Solution_MonID of your solution and select ‘Execute’.
In the following result screen, choose to display the entries for PT_CUST_TABLE.

<table>
<thead>
<tr>
<th>Import parameters</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>P_SOLUTION</td>
<td></td>
</tr>
<tr>
<td>P_OBJECTNO</td>
<td></td>
</tr>
<tr>
<td>P_TYPE</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Export parameters</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>PT_CUST_TABLE</td>
<td></td>
</tr>
<tr>
<td>PT_BPMON_CUST</td>
<td></td>
</tr>
</tbody>
</table>

In the entries for PT_CUST_TABLE search for the line containing CUSTTYPE ‘CUSTGENR’. For this line search for the entry for field INFO1. The entry maintained there is the name of the RFC server group in which the monitoring for your solution is executed.

Afterwards, call transaction RZ12 on the SAP Solution Manager system. There, check whether the RFC server group (logon group) used in your solution has a green status.

IF the logon group does not have a green status, repair the entry (via double-click on name of logon group) so that the status shows as green or use a logon group with a green status in your BPMon configuration (BPMon Setup session – node ‘Basic Settings’ → ‘Solution-specific Settings’).

- Problems with the RFC workload on the SAP Solution Manager system are visible in transaction /nSARFC. Call this transaction on the SAP Solution Manager system. The following screen tells you the amount of available resources per SAP instance and gives a short description about possible error scenarios. Since the transaction only displays a snapshot of the system situation at the time of the transaction execution you should execute the transaction several times to determine if you are just observing a temporary bottleneck or a real problem situation.

<table>
<thead>
<tr>
<th>Server Resources</th>
</tr>
</thead>
<tbody>
<tr>
<td>Server Name</td>
</tr>
<tr>
<td>walam1m_SMI_29</td>
</tr>
<tr>
<td>walam1m_SMI_29</td>
</tr>
</tbody>
</table>

IF the number in column ‘Resources’ is larger than 0 there is no problem with the RFC resources in the SAP Solution Manager system. Usually text ‘Resources OK’ is displayed in field ‘Description’.
IF the number in column ‘Resources’ is ‘0’ there is a problem with the RFC resources. In this case the field ‘Description’ gives details for the error situation.

Some of the possible error scenarios are:

- The resource check is deactivated (parameter rdisp/rfc_use_quotas is set to 0).
- The server has too few free dialog work processes.
- The quota for the RFC communication channels is too small. Increase the parameter rdisp/rfc_max_comm_entries or change the value dynamically.
- The quota for the RFC communication channels (rdisp/rfc_max_comm_entries) has reached its maximum.
- The local queue for asynchronous RFC responses is full. This queue retains the responses to asynchronous RFCs until they are sent back to the caller. You can increase the size of the queue by increasing the value of the parameter rdisp/max_arq.
- The quota for a dialog work process occupied by an RFC user is too small. Increase the size of the parameter rdisp/rfc_max_own_used_wp or change the value dynamically.
- The quota for a dialog work process occupied by an RFC user (rdisp/rfc_max_own_used_wp) is too small.

Solve the error situation according to the description.

For more information on analyzing RFC resources in SAP systems see the SAP Online Help in chapter ‘Tools for Monitoring the System’ → ‘Monitoring RFC Resources on the Application Server’.

- Problems with the CCMS workload are visible in the statistical records and in the CCMS itself.

Call transaction RZ20 on the SAP Solution Manager system. Open the node to ‘SAP CCMS Technical Expert Monitors’ → ‘System / All Monitoring Segments / All Monitoring Contexts’.
In the next screen, the MTE nodes are sorted per SAP Instance. One of the nodes ‘SAP_CCMS_<SAP instance name>’ contains a sub-node ‘BPM’. For this parent node open the respective sub-node ‘MonInfra_<SAP instance name>’.

Place your cursor on the sub-node ‘ToolDispatching (short running tasks)’ → ‘Messages’ and select button ‘Display Details’. This brings you to the detailed view for the messages concerning short running CCMS tasks.

Here, check via the time stamp whether there are message for report DSWP_BPM_MONITORING. 

IF there are no messages for this report call transaction STAD on the SAP Solution Manager system and check the runtime of the AUTOABAP. To do so, enter program ‘AUTOABAP’ and hit ‘Enter’.

The runtime is the figure in column ‘Response time (ms)’.
If the response time is close to 5 minutes (300 000 ms) an issue with the workload of the CCMS is likely and further analysis of CCMS data collection is required.

**Solution 4:**

- To check whether the BPMon engine is running correctly start by checking the status of the data collectors in the self monitoring in the BPMon session. Look for open alerts in tab ‘Open CCMS Alerts’.

In the monitoring session, also check the messages from the data collection protocol.

- **IF** there are open CCMS messages or messages in the data collection protocol, check for further details in the application log of SAP Solution Manager. To do so, call transaction SLG1 on the SAP Solution Manager system as described in chapter 8.2 and look for error messages for the data collection for your Solution_MonID (i.e. external ID containing ‘DCOL’ and your Solution_MonID) and solve the errors according to the message text.

- **IF** the messages in the application log do not give enough information to solve the error situation, check for dumps for the user maintained in the RFC destination BPM_LOCAL_<client>. To do so, call transaction SM59 on the SAP Solution Manager system and double click on the name of RFC destination BPM_LOCAL_<client>. This opens the details for the RFC destination. There, check which user is maintained in tab ‘Logon & Security’. Then, call transaction ST22 on the managed system and select to display dumps for this user (usually SM_BPMO) for the day. If there are short dumps existing, check whether the originated in BPMon related coding (coding name containing the string ‘BPM’).
IF this does not provide a cause for the error, check whether there is enough space for alerts available within the CCMS on SAP Solution Manager. To do so call transaction RZ20 on the managed system. There, choose node ‘CCMS monitor sets’ ↦ ‘SAP CCMS Technical Expert Monitors’ ↦ ‘System / All Monitoring Segments / All Monitoring Contexts’.

This opens the CCMS Technical Expert Monitors so that the MTEs are sorted per SAP Instance.
One of the SAP instance nodes has a sub-node ‘BPM’. For this SAP instance node open the node ‘MonInfra_<SAP instance name>‘ → ‘Space’.

Background Information: This node contains the self-monitoring of the CCMS. Alerts and messages within the CCMS are stored in the shared memory of the SAP Instance. If the space assigned to the CCMS is completely used, the CCMS cannot store new alerts or new messages and the BPMon will run into an error situation.

Check whether the MTEs for ‘Messages’ and ‘FreeAlertSlots’ show a green alert. If either of them has a yellow or red alert, double-click on the respective MTE name to get additional information about the distribution of the space allocation.

In case of problems change the space available to the CCMS or the distribution of the space allocation according to SAP notes 135503 and 731165.
• Check for authorization issues for the user maintained in RFC destination BPM_LOCAL_<client>. To do so, call transaction SM59 on the SAP Solution Manager system and double click on the name of RFC destination BPM_LOCAL_<client>. This opens the details for the RFC destination. There, check which user is maintained in tab ‘Logon & Security’.

For this user check in transaction SU01 whether the profile S_CSMREG or role SAP_S_CSMREG have been assigned. If the role has been assigned, check whether the role has been generated in its current version.

You can also check for error messages concerning the authorization of this user in the application log. To do so, call transaction SLG1 on the SAP Solution Manager system as described in chapter 8.2 and look for error messages for the data collection for your Solution_MonID (i.e. external ID containing ‘DCOL’ and your Solution_MonID) and solve the errors according to the message text.

If there are no error messages visible, but you still suspect an authorization issue, you can also execute an authorization trace for the user maintained in RFC destination BPM_LOCAL_<client>. Call transaction ST01 on the SAP Solution Manager system, use the general filters to restrict the trace to the user and activate the trace. Afterwards, check if there are failed authorization checks visible in the trace. If so, assign the missing authorizations to your user.

Solution 5:

• To check whether the READ RFC destinations are working correctly, call transaction SMSY on the SAP Solution Manager system and identify which RFC destination is assigned for the READ access to the involved managed system as described in chapter 2.1

5.1.2 Data Collection on Managed System takes very long, although there are hardly any monitoring objects configured

Symptom:

You have activated BPMon for a Business Process. You check the duration of the data collection on the managed system. The data collection is very long, although there are hardly any monitoring objects configured and the respective selects on the managed system are very fast.

Possible Root Cause:

Potentially, the data collection is not just executed for the currently active monitoring objects but also for some old monitoring objects.
In earlier releases of SAP Solution Manager, when you deleted a solution that contained active BPMon, the scheduling information in the BPMon engine was not always completely deleted. This resulted in the associated data collections to be executed even after the solution was deleted.

**Solution:**

Find out for which solutions data collections are being triggered on your SAP Solution Manager system. If the number of configured monitoring objects is small enough, you can do so by calling transaction SE16 and checking the entries in table DSWP_BPM_TIMESCH.

If table DSWP_BPM_TIMESCH contains too many entries to see how many solutions have data collections scheduled, you can use transaction TAANA to analyze the table DSWP_BPM_TIMESCH. In the transaction, call ‘Table Analysis’ → ‘Perform Check’ in the SAP menu. In the pop-up, enter table name DSWP-BPM_TIMESCH and select the value help for field ‘Analysis Variant’.

In the following pop-up, select ‘Ad Hoc Variant’ and choose to include field ‘Solution’ in the Analysis Variant fields. Afterwards, confirm the pop-up and execute the analysis online.

In the result screen you can see for which Solution_MonIDs data collections are scheduled. Use the procedure described in chapter 9.1 to find the clear names for the involved solutions. If the procedure described in that chapter does not provide a solution name, the respective solution no longer exists. Take note of the respective Solution_MonIDs without a solution.

Instead of analyzing table DSWP_BPM_TIMESCH this way, you can also simply deactivate the monitoring for all business processes in all solutions and afterwards check the entries in table DSWP_BPM_TIMESCH. If after deactivating the monitoring for all business processes there are still entries in DSWP_BPM_TIMESCH, the concerned solutions no longer exist.

With the list of the concerned Solution_MonIDs call transactions SE16 on the SAP Solution Manager system and check in table DSWP_BPM_MON_OBJ which monitoring session numbers (field SESSNO) and which business process numbers (field POBJECTNO) belong to these Solution_MonIDs.
Afterwards, call transaction /nDSA on the SAP Solution Manager system. In the selection screen, flag ‘Selected sessions’ and enter the session number. Afterwards, choose ‘Display’. Access the BPMon session and deactivate the monitoring for the involved business process in node ‘Activation’.

Repeat this procedure until all obsolete entries are gone from table DSWP_BPM_TIMESCH.

If there is no session number available for the monitoring object or the session number is 0000000000000, you can also deactivate the monitoring via function module DSWP_BPM_DEACTIVATE_MON_CUSTOM. To do so, call transaction SE37 on the SAP Solution Manager system. Enter function module name ‘DSWP_BPM_DEACTIVATE_MON_CUSTOM’ and select ‘Test’.

In the next screen in field ‘SOLUTION’ enter the Solution_MonId, in field ‘SESSNO’ the session number and in field ‘PBOJECTNO’ the process number you noted from the respective entry in table DSWP_BPM_MON_OBJ. Choose ‘Execute’.

Afterwards, you can check in the protocol tables whether or not your deactivation was successful.

Repeat these steps for all obsolete entries in table DSWP_BPM_TIMESCH.

The above described steps to deactivate the monitoring should only be used to deactivate the monitoring for obsolete monitoring objects that do not have a BPMon session assigned. Whenever you have a BPMon session available, deactivate the monitoring via the BPMon session.
5.2 Errors in the Data Collection for specific Monitoring Objects

5.2.1 Single Alert was not created when it was due

Symptom:
You have activated BPMon for a Business Process. Various monitoring objects and key figures are configured within the business process. Most of these monitoring objects produce key figures when you expect them to, but some do not provide alerts even though the data collection was due some time ago.

Possible Root Cause:

There are several root causes possible for this problem:

1. The monitoring configuration is incomplete or faulty. To solve the situation see Solution 1.
2. There are problems with the READ RFC destination to the managed system. To solve the situation see Solution 2.
3. The data collection is executed via background job on the managed system. There are problems with the execution of the background job. To solve the situation see Solution 3.

Solution 1:

Check the scheduling for the data collection of the monitoring object. For this, call transaction SE16 on the SAP Solution Manager system. Choose to display the entries for table DSWP_BPM_TIMESCH where field MONID contains the MonID of the concerned monitoring object.

<table>
<thead>
<tr>
<th>SOLUTION</th>
<th>SID</th>
<th>MONTY</th>
<th>MONID</th>
<th>NEXTDATE</th>
<th>NEXTIME</th>
<th>PERIOD</th>
<th>MONOBJ</th>
<th>WSCHEL</th>
<th>CLIENT</th>
<th>BTC_RUN</th>
<th>STARTTIME</th>
<th>ENDTIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>JM:0202705602/0000000200/00202705602</td>
<td>QPT</td>
<td>APPHOK</td>
<td>0000001472220008</td>
<td>20.05.2010</td>
<td>14:15:00</td>
<td>000</td>
<td>0000001472220008</td>
<td>111111000</td>
<td>000</td>
<td>2</td>
<td>00.00.00</td>
<td>23:59:59</td>
</tr>
</tbody>
</table>

There should be one entry for your monitoring object.

IF there is no entry for your monitoring object, check the configuration of your monitoring object and generate and activate the monitoring again.

IF there is an entry for your monitoring object, check the scheduling information in fields WSCHEL and PERIOD. Fields NEXTDATE and NEXTIME tell you when the next data collection is due. Field BTC_RUN tells you whether the data collection is supposed to run via background job and if so which background job will execute the data collection (entry ‘1’ = job BPM_DATACOLLECTION_1, entry ‘2’ = job BPM_DATACOLLECTION_2).

IF the time for the next data collection lies more than 10 minutes in the past, proceed with solution 2.

Solution 2:

Start by checking the application log for the monitoring object on the SAP Solution Manager system. To do so, call transaction SLG1 and display log entries for object SOLAR, sub-object

![Application Log Entry](image-url)
BPMON* and for external IDs containing the Solution_MonID of the concerned solution, the SID of the managed system and the respective monitoring type.

Check for any error messages concerning the data collection. The most likely cause is that either the READ RFC destination does not work correctly or that the user maintained in the RFC destination does not have sufficient authorization to execute the coding.

To check whether the READ RFC destination works correctly call transaction SMSY to determine which RFC destination is assigned as READ RFC destination for the managed system. See chapter 2.1 for details.

Once you are in the SMSY in tab 'Clients' execute a double-click on the name of the READ RFC destination. In the following screen go to tab 'Logon & Security' and check the name of the user and the client maintained here. Now execute an authorization check via the SAP menu 'Utilities' → 'Test' → 'Authorization Test'.

IF the authorization check is not successful, change the entry for password to the correct entry so that the authorization check is successful. This may include unlocking the user on the managed system.

IF the authorization check is successful, log on the respective client of the managed system.

Firstly, check for short dumps for the user of the READ RFC destination. To do so call transaction ST22, enter the user name and the current day as selection criteria and choose 'Start' to display the relevant short dumps. If there are short dumps, look if they were caused by coding containing 'BPM' in the name. In case of existing short dumps look for SAP notes to solve the problem.

Secondly, check if the user has all necessary authorizations assigned. To do so, call transaction SU01 and display the user master record. Check if profile S_CSMREG or role SAP_S_CSMREG is assigned. Assign either role or profile if they are missing.

IF the role is assigned to the user, verify that the current version of the role has been generated and a user comparison has been executed.
To do so go to tab 'Roles' and double-click on the role name. This opens a new screen with the role details of transaction PFCG.

Go to tab ‘Authorizations’ and check the status of the Authorization Profile. If the entry is ‘Current Version not generated’ generate the profile for the role. Afterwards, check the icon for tab ‘User’. If the icon is not green, a user comparison needs to be executed so that the newly generated profile is assigned to the users that have the role assigned. Execute the user comparison.

Observe that some monitoring functionalities require additional authorizations for the user executing the data collection. See the following error scenarios described in this chapter for details and see SAP note 784752 for details regarding these additional authorization requirements.

Solution 3:

Start by checking in the scheduling table on SAP Solution Manager whether the BPMon engine has planned the data collection to be executed in background. Keep in mind that the BPMon engine can switch the data collection from direct collection to background collection if the data collection takes too long. Field BTC_RUN in table DSWP_BPM_TIMESCH tells you whether the data collection is planned to be executed in background and which background job will execute the data collection. See solution 1 for details.

**IF** the data collection is scheduled to be run as background job check whether the job responsible for the data collection is running regularly. To do so, call transaction SM37 on the managed system and check if background job BPM_DATACOLLECTION_1 runs every 5 minutes. Observe that background job BPM_DATACOLLECTION_2 does normally NOT run every 5 minutes, but only if the load of the data collection requires the run of this job.

**IF** there is no background job running, check whether the user maintained in the READ RFC destination has authorization object S_BTCH_JOB with authorizations fields JOBACT = ‘RELE’ (release jobs) and JOBGROUP = ‘*’ assigned. For this, use transaction SU56 on the managed system and select ‘Authorization Values ➔ Different User’ / ‘Authorization Object’ in the SAP menu to display the authorization objects assigned to this user.
Assign missing authorizations to the user in the READ RFC destination.

**IF** the background job is running, check which job execution was supposed to take care of the data collection for your monitoring object. To do so call transaction SE38 on the managed system and execute report /SSF/PTABBROWSER. Enter Relid ‘TC’ and Projectid ‘EXS’ in the selection criteria. Afterwards, choose button ‘Select keys’

This restricts the list of keys. Select to display the content for object key ‘I’.

In the data viewer you can see in column ‘JOBCOUNT’ which background job will execute the data collection for your monitoring object (identifiable via MONID).

Via this job ID you can identify which background job was responsible for the data collection. To do so call transaction /nSE16 on the managed system and display the entry where the field JOBCOUNT is the value identified previously.
Fields SDLSTRDTDT tells you the planned start date for the job, field SDLSTRRTTM tells you the scheduled start time. With this information and the job name you can call transaction SM37 on the managed system.

In the following screen the details for the background job are displayed. Check the status of the job and display the job log for further information.

In the job log, look for error messages concerning the execution of the data collection.

IF there are no problems visible in the job log check whether the results of the data collection are still available on the managed system. The results are available as long as they have not been picked up from the SAP Solution Manager. When they are picked up the data collection results are transferred to the alert table DSWP-BPM_ALERTS.

To check whether the results of the data collection are still available on the system so call transaction SE38 on the managed system and execute report /SSF/PTABBROWSER. Enter Relid ‘TC’ and Projectid ‘EXS’ in the selection criteria. Afterwards, choose button ‘Select keys’.
This restricts the list of keys. Select to display the content for object key ‘I’.

Observe that if there are no data collection results currently stored on the managed system there will not be an object key ‘I’ visible here.

In the data viewer, you can see the result of the last data collection via background job. This allows you, amongst others, to see for which key figures of the monitoring type the data collection was executed (field ALERTTYPE, first 8 digits identify the monitoring type, last two digits identify the number of the key figure), when it was executed (fields ADATE and ATIME), which rating was determined (field RATING) and what value was measured (field AL_MEAS_VALUE).

If there is an entry for the data collection here, but the information was not transferred to the SAP Solution Manager system the transfer of the results via the READ RFC destination failed. In that case check the correct functioning of the READ RFC destination and the authorization of the user maintain in the READ RFC destination again and check for error messages written by the BPMon engine in the application log of SAP Solution Manager. See chapter 8.2 for details concerning the application log entries.

5.2.2 File Monitoring alert was not created

Symptom:

You have activated a monitoring object of type file monitoring (technical name BOFILMON). No alerts are created for this monitoring object, even though the data collection was due and alerts should have been created.
Possible Root Cause:

The file monitoring within the application monitoring infrastructure (technical name BOFILMON) requires additional authorizations for the user in the READ RFC destination. If these authorizations have not been assigned, the data collection cannot be executed and no alert gets created.

Solution:

Check which RFC destination is assigned as the READ RFC destination for the involved managed system. To do so call transaction SMSY on the SAP Solution Manager system and check the entry for ‘RFC Read Access’. See chapter 2.1 for details.

Once you are in tab ‘Clients’ for the managed system, execute a double-click on the name of the RFC destination. This will display the details for the RFC destination. Check which client and user are maintained in tab ‘Logon & Security’.

Afterwards, log on to the respective client of the managed system and call transaction SU56. Display the authorization objects assigned to the user of the RFC destination by selecting ‘Authorization Values’ → ‘Different User / Authorization Object’ from the SAP menu. Use Ctrl+F to search for authorization object ‘S_CTS_ADMI’ with authorization field CTS_ADMFCT = EPS1.

**IF** the authorization object is assigned to the user, but with a wrong authorization field entry, check in the tree which role contains the object and adjust the entry for the authorization field for this role via transaction PFCG.

Generate all changes to the role and execute a user comparison of necessary.

**IF** the authorization object is not yet assigned to the user either create a new role containing the authorization object or identify an existing role containing the authorization object via the User Information System (transaction SUIM). (See Solution 1 for problem 7.1.4 for details on how to use transaction SUIM, keeping in mind that here the transaction has to be executed on the managed system.) Adjust the entry for the authorization field CTS_ADMFCT if necessary and generate your changes. Afterwards, assign the role to the user maintained in the READ RFC destination.

When changing existing roles ensure that your changes do not violate the authorization concept of other applications using the same roles.

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5.2.3 IDoc Monitoring alert was created incorrectly

**Symptom:**


You have activated a monitoring object of type IDoc monitoring (technical name BOFILMON). Within this monitoring object you have configured the selection criteria for content of IDoc segments. The alerts created for this monitoring object show a wrong measured value.

**Possible Root Cause:**

The monitoring of IDoc based on the content of IDoc segments requires additional authorizations for the user in the READ RFC destination. If these authorizations have not been assigned, the data collection cannot execute the coding that considers the content of the IDoc segments. Thus the measured value determined for the alert has been determined without considering the IDoc content and may be too high.

**Solution:**

Determine whether the wrong measured value was caused by missing authorization object. To do so call transaction SMSY on the SAP Solution Manager system and check the entry for ‘RFC Read Access’. See chapter 2.1 for details.

Once you are in tab ‘Clients’ for the managed system, execute a double-click on the name of the RFC destination. This will display the details for the RFC destination. Check which client and user are maintained in tab ‘Logon & Security’.

Afterwards, log on to the respective client of the managed system and call transaction SU56. Display the authorization objects assigned to the user of the RFC destination by selecting ‘Authorization Values’ → ‘Different User / Authorization Object’ from the SAP menu. Use Ctrl+F to search for the following authorization objects:

- **S_IDOCDEFT** with authorization fields \texttt{EDI\_TCD = WE30} and \texttt{ACTVT = 03}.
- **S_CTS_ADMI** with authorization field \texttt{CTS\_ADMFCT = TABL}

**IF** the authorization objects are assigned to the user, but with a wrong authorization field entries, check in the tree which role contains the objects and adjust the entries for the authorization fields for this role via transaction PFCG.

Generate all changes to the role and execute a user comparison of necessary.

**IF** the authorization objects are not yet assigned to the user either create a new role containing the authorization objects or identify existing roles containing the authorization objects via the User Information System (transaction SUIM). (See Solution for problem 7.1.4 for details on how to use transaction SUIM, keeping in mind that here the transaction has to be executed on the managed system.). Adjust the entries for the authorization fields for the missing authorization objects if necessary and generate your changes. Afterwards, assign the roles to the user maintained in the READ RFC destination.

When changing existing roles ensure that your changes do not violate the authorization concept of other applications using the same roles.

**5.2.4 Retail Monitoring alert for POS transactions was not created**

**Symptom:**
You have activated the Retail monitoring object for the point-of-sale (POS) transactions (technical name KIRET001). No alerts are created for this monitoring object, even though the data collection was due and alerts should have been created.

Possible Root Cause:

The monitoring of the monitoring object requires additional authorizations for the user executing the data collection. If these authorizations have not been assigned, the data collection cannot be executed and no alert gets created.

Solution:

Check which RFC destination is assigned as the READ RFC destination for the involved managed system. To do so call transaction SMSY on the SAP Solution Manager system and check the entry for ‘RFC Read Access’. See chapter 2.1 for details.

Once you are in tab ‘Clients’ for the managed system, execute a double-click on the name of the RFC destination. This will display the details for the RFC destination. Check which client and user are maintained in tab ‘Logon & Security’.

Afterwards, log on to the respective client of the managed system and call transaction SU56. Display the authorization objects assigned to the user of the RFC destination by selecting ‘Authorization Values’ → ‘Different User / Authorization Object’ from the SAP menu. Use Ctrl+F to search for authorization object ‘W_POS_TRAN’ with authorization fields /POSDW/PAC = 03 and /POSDW/STO = *.

IF the authorization object is assigned to the user, but with wrong authorization field entries, check in the tree which role contains the object and adjust the entries for the authorization fields for this role via transaction PFCG.

Generate all changes to the role and execute a user comparison of necessary.

IF the authorization object is not yet assigned to the user either create a new role containing the authorization object or identify an existing role containing the authorization object via the User Information System (transaction SUIM). (See Solution 1 for problem 7.1.4 for details on how to use transaction SUIM, keeping in mind that here the transaction has to be executed on the managed system.) Adjust the entries for the authorization fields /POSDW/PAC and /POSDW/STO if necessary and generate your changes. Afterwards, assign the role to the user maintained in the READ RFC destination.

When changing existing roles ensure that your changes do not violate the authorization concept of other applications using the same roles.

5.2.5 SRM Monitoring alert was not created

Symptom:

You have activated one of the SRM monitoring objects (technical name SRM001, ..., SRM005). No alerts are created for this monitoring object, even though the data collection was due and alerts should have been created.
Possible Root Cause:

The monitoring of the SRM monitoring objects requires additional authorizations for the user executing the data collection. If these authorizations have not been assigned, the data collection cannot be executed and no alert gets created.

Solution:

Check which RFC destination is assigned as the READ RFC destination for the involved managed system. To do so call transaction SMSY on the SAP Solution Manager system and check the entry for ‘RFC Read Access’. See chapter 2.1 for details.

Once you are in tab ‘Clients’ for the managed system, execute a double-click on the name of the RFC destination. This will display the details for the RFC destination. Check which client and user are maintained in tab ‘Logon & Security’.

Afterwards, log on to the respective client of the managed system and call transaction SU56. Display the authorization objects assigned to the user of the RFC destination by selecting ‘Authorization Values’ → ‘Different User / Authorization Object’ from the SAP menu. Use Ctrl+F to search for authorization object ‘PLOG’ with the following authorization fields:

- PPFCODE = DISP
- PLVAR = 01
- OTYPE = O
- INFOTYP = 5500
- SUBTYP = 0200 and 0300
- ISTAT = (initial)

If the authorization object is assigned to the user, but with wrong authorization field entries, check in the tree which role contains the object and adjust the entries for the authorization fields for this role via transaction PFCG.

Generate all changes to the role and execute a user comparison of necessary.

If the authorization object is not yet assigned to the user either create a new role containing the authorization object or identify an existing role containing the authorization object via the User Information System (transaction SUIM). (See Solution 1 for problem 7.1.4 for details on how to use transaction SUIM, keeping in mind that here the transaction has to be executed on the managed system.) Adjust the entries for the authorization fields if necessary and generate your changes. Afterwards, assign the role to the user maintained in the READ RFC destination.

When changing existing roles ensure that your changes do not violate the authorization concept of other applications using the same roles.

Alternatively you can also implement SAP note 1501464 on the managed so that the data collection bypasses the authorization checks.
6 Errors in the Automatic Alert Processing

After the alerts have been determined, the automatic alert reprocessing takes place. This chapter summarizes typical error scenarios for the automatic alert processing.

6.1.1 Email for alert was not sent

Symptom:

You have received alerts in the BPMon Alert Inbox. Email notifications should have been sent via the standard functionality (not via an implemented BAdI). But no emails are sent.

Possible Root Cause:

Several root causes are possible if the sending of the email notifications failed. You basically have to determine whether this symptom you see is caused by a problem in the BPMon infrastructure or the email sending infrastructure of transaction SCOT. To determine the root cause, follow the outlined procedure:

1. Call transaction SCOT on SAP Solution Manager (in the BPMon client). Check if there are messages in status waiting or status 'Error' for node INT.

   ![Table showing message statuses](image)

   If there are messages in status 'Waiting', check if these are message for BPMon alerts by selecting Utilities → Overview of send orders in the SAP Menu.

   ![Overview of send orders](image)

   In the overview of the send orders you can identify those related to BPMon alert via the title (= email header that you specified in the BPMon setup).
2. **IF** the BPMon alert emails are visible in SCOT in status ‘Waiting’, check if you can trigger their sending manually by choosing **Utilities → Start send process** form the SAP Menu.

In the following pop-up, select ‘Start’. If the emails are now sent successfully, the root cause is that the background job responsible for sending email is not running. To solve this, see **Solution 1**.

3. **IF** the BPMon alert emails are visible in SCOT in status ‘Error’, check the error message for the emails by clicking on the alert icon in the ‘overview of send orders’

The most common error is that the sender of the email does not have a valid email address assigned. To solve this situation, see **Solution 2**.
4. **IF** you are generally unsure whether or not SCOT was correctly configured, you can check this by sending a manual email via transaction SO01. (Prerequisite is that your dialog user has a valid email address assigned in the user data in transaction SU01. Normally, this email address has to be within the name space of your email server.) In SO01 select button ‘New Message’.

In the next screen, enter a short text and the recipient information for your email address. Afterwards, choose ‘Send’.

If the email is sent successfully (and reaches your email inbox after some time), it means that the SCOT infrastructure is working correctly. This usually indicates that the problem with the email sending for BPMon alerts lies within the BPMon infrastructure. **IF** you could not send an email this way, SCOT has not been correctly configured. To solve this situation, see **Solution 3**.

5. **IF** there are no BPMon alert emails visible in SCOT, the emails were not created. Most likely this is due to the fact that the user of the BPMon engine (user maintained in RFC destination BPM_LOCAL_<client>) does not have sufficient authorizations to create emails. Very often, this is caused by the fact that role SAP_IDOC_EVERYONE is either not assigned to this user or is not generated in its current version. To solve this situation, see **Solution 4**.

**Solution 1:**

Schedule the background job responsible for periodically sending emails SCOT via Settings → Send Jobs in the SAP Menu. See SAP note 455140 for details.

**Solution 2:**

Check which user is assigned as email sender in your BPMon configuration.
For this user, call transaction SU01 and

Solution 3:

Configure email sending via SCOT according to SAP note 455140.

Solution 4:

Check which user is maintained in RFC destination BPM_LOCAL_<client>. For this, call transaction SM59 and double-click on RFC Connection BPM-LOCAL_<client>.

In the next screen, go to tab 'Logon & Security' and check which user is maintained here.
For this user, call transaction SU01. There, go to tab ‘Roles’. Check if role SAP_IDOC EVERYONE or a copy of this role is assigned here. If the role is not assigned, go into change mode and assign this role. Afterwards save your entry.

Once the role is assigned, check whether the role is generated in its current form. To do so, in tab ‘Roles’ double-click on the role name ‘SAP_IDOC EVERYONE’. This brings you to the role maintenance for this role (transaction PFCG).

Go to tab ‘Authorizations’ and check the entry in ‘Status’. If the entry there is ‘Current version not generated’, switch to change mode for the role and select ‘Change Authorization Data’.

In the next screen, choose ‘Generate’. 
The problem of roles not being generated in their current version can occur if SAP standard roles are used. If a new version of a role is part of an implemented support package or add-on, the profile generated for the old version becomes automatically inactive. Therefore, Best Practice is to use z-copies of the roles instead of the SAP standard roles themselves.

6.1.2 Automatic creation of SAP Service Desk Messages fails

Symptom:

You have configured automatic SAP Service desk messages created for BPMon alerts (via the standard functionality). Although the thresholds for creating service desk messages have been exceeded, no messages get created.

Possible Root Cause:

Most likely this is due to the fact that the user of the BPMon engine (user maintained in RFC destination BPM_LOCAL_<client>) does not have sufficient authorizations to create SAP Service Desk messages. Very often, this is caused by the fact that role SAP_SUPPDESK_CREATE is either not assigned to this user or is not generated in its current version.

Solution:

Check which user is maintained in RFC destination BPM_LOCAL_<client>. For this, call transaction SM59 and double-click on RFC Connection BPM-LOCAL_<client>.

In the next screen, go to tab ‘Logon & Security’ and check which user is maintained here.
For this user, call transaction SU01. There, go to tab ‘Roles’. Check if role SAP_SUPPDESK_CREATE or a copy of this role is assigned here. If the role is not assigned, go into change mode and assign this role. Afterwards save your entry.

Once the role is assigned, check whether the role is generated in its current form. To do so, in tab ‘Roles’ double-click on the role name ‘SAP_SUPPDESK_CREATE’. This brings you to the role maintenance for this role (transaction PFCG).

Go to tab ‘Authorizations’ and check the entry in ‘Status’. If the entry there is ‘Current version not generated’, switch to change mode for the role and select ‘Change Authorization Data’.

In the next screen, choose ‘Generate’.
The problem of roles not being generated in their current version can occur if SAP standard roles are used. If a new version of a role is part of an implemented support package or add-on, the profile generated for the old version becomes automatically inactive. Therefore, Best Practice is to use z-copies of the roles instead of the SAP standard roles themselves.

6.1.3 Automatic notification via BAdI implementation fails

Symptom:

You have implemented one of the notification BAdIs on SAP Solution Manager in package DSWP_BPM, enhancement spot ENH_SPOT_DSWP_BPM_NOTIF. The BAdI implementation is not considered, although the threshold values have been exceeded.

Possible Root Cause:

Most likely this is due to the fact that the user of the BPMon engine (user maintained in RFC destination BPM_LOCAL_<client>) does not have sufficient authorizations.

In addition, it could also be that your BAdI implementation is faulty.

Solution:

Check for the user maintained in RFC destination BPM_LOCAL_<client> whether this user has roles SAP_IDOC_EVERYONE or SAP_SUPPDESK_CREATE assigned and the current version of the profile for these roles is generated. See the solutions for problems 6.1.1 and 6.1.2 for details.

Additionally, it could also be that your BAdI implementation requires additional authorizations. To find out if there are additional authorization objects required execute an authorization trace for the user maintained in the RFC destination BPM_LOCAL_<client> at the time where the BAdI execution should take place. To do so call transaction ST01 on the SAP Solution Manager system and use the ‘General Filters’ to restrict the trace to the user.

Analyze the trace for failed authorization checks and if required add additional authorizations to the user.
If there are no authorization issues visible in the authorization trace, check whether the respective BAdI implementation was called at all. To do so, call transaction ST03N on the SAP Solution Manager system and switch on the writing of application statistic records for SAP functions as described in chapter 9.2.

Now wait for BPMon engine to run when the BAdI execution is due. Afterwards, call transaction STAD on the SAP Solution Manager system and choose to display the statistical records (including application statistics) for the user maintained in RFC destination BPM_LOCAL_<client> or for the relevant time frame as described in chapter 9.2. Check the available application statistic records via double click for the ‘Application Info’ to determine during which part of the BPMon processing the record was created.

IF there is an application statistic record for the BAdI the respective BAdI has been called (see naming conventions for the ‘Application Info’ in chapter 9.2.). In this case you have to check the coding within your BAdI implementation to determine why the intended action was not executed.

IF there is no application statistic record for the respective BAdI, the BAdI has not been called. In this case check your customizing in the BPMon Setup session in node ‘Notifications & Service Desk’.
7 Errors in the Alert Handling

This chapter describes error scenarios in the handling of alerts once they have arrived in the BPMon Alert Inbox.

7.1 General Errors in the Alert Handling

7.1.1 BPMon session dumps when navigating in the session

Symptom:

When navigating in the BPMon session, an ABAP short dump occurs in one of the nodes.

Possible Root Cause:

When a new version of add-on ST-SER is implemented on SAP Solution Manager, it can contain new definitions for the BPMon session. Normally these new definitions are considered in the BPMon session by automatically re-initializing the session as part of the ST-SER implementation. If this re-initialization did not take place, short dumps can occur.

Solution:

Re-initialize the BPMon session manually by accessing the session and then calling Session components ➔ Re-initialize in the SAP menu.

7.1.2 BPMon session dumps when opening the session

Symptom:

When opening the BPMon session, an ABAP short dump occurs.

Possible Root Cause:

When a new version of add-on ST-SER is implemented on SAP Solution Manager, it can contain new definitions for the BPMon session. Normally these new definitions are considered in the BPMon session by automatically re-initializing the session as part of the ST-SER implementation. If this re-initialization did not take place, short dumps can occur.

Solution:

Re-initialize the BPMon session manually by calling trouble shooting transaction /nDSA. There, flag ‘Selected sessions’ and enter the name of your solution in field ‘Description’ (wildcards possible) and ‘SOL_BPMO’ in field ‘Session Package’. Afterwards, choose ‘Display’.
In the following screen, select the session number to display the session details on the right-hand side. There, select the icon for the lower node ‘Business Process Monitoring’ and select button ‘Session components’ → ‘Reset’ to re-initialize the BPMon session.

Alternatively you can also reset the session by executing a right-mouse-click on the lowest node ‘Business Process Monitoring’ and choosing ‘Session Components’ → ‘Reset’.

7.1.3 Manual creation of SAP Service Desk Messages fails

**Symptom:**

When trying to manually create an SAP Service Desk message for an alert, the creation of the service desk message fails.

**Possible Root Cause:**

Most likely, this is due to missing authorizations for the involved dialog user.
Solution:

Call transaction SU01 on the SAP Solution Manager system. Check which roles have been assigned to the involved dialog user. Verify if role SAP_SUPPDESK_CREATE or a copy of this role have been assigned to the user. If the role has been assigned, double-click on the role name and check if the current version of the role has been generated. If the current version has not been generated, generate the role again. Afterwards, log on to SAP Solution Manager with the involved dialog user again and try creating a SAP Service Desk message for a BPMon alert.

If afterwards the creation of the service desk message still does not work, you can try executing an authorization trace for the involved dialog user. For this, log on to SAP Solution Manager with another user and call transaction ST01. There, use ‘General Filters’ to restrict the trace to the dialog user wanting to create the service desk message. Afterwards, activate the trace.

Now try to create a service desk message for a BPMon alert with the other dialog user. Afterwards, deactivate the trace and check the trace for any failed authorization checks. Change the user authorizations accordingly.

7.1.4 Calling of ‘Detail Info’ List for all Application Monitoring Objects fails

Symptom:

You try to execute the ‘Detail Info’ functionality for an alert of an application monitor. The display of the ‘Detail Info’ list does not work.

Possible Root Cause:

There are two possible root causes:

1. The dialog user does not have the authorization to execute the ‘Detail Info’ functionality. To solve this situation see Solution 1.
2. The dialog logon to the managed system is configured to be executed via trusted RFC destination, and either the trusted RFC relationship between SAP Solution Manager and the managed system is not configured correctly or the dialog user does not have the authorization to log on via trusted RFC destinations. To solve this situation see Solution 2.

Solution 1:

As of SPS23 the execution of the ‘Detail Info’ list for BPMon alerts requires authorization object ‘BPM_DETAIL’ for the involved dialog user. In SPS23, this authorization object is not part of any SAP standard role.

Firstly, determine whether your user has the authorization for the ‘Detail Info’ list. To do so, call transaction SU56 on the SAP Solution Manager system. If necessary, switch the analyzed user via the SAP menu.
‘Authorization Values’ → ‘Different User / Authorization Object’. Once the list of authorization objects is displayed, search for object ‘BPM_DETAIL’ via Ctrl+F.

If the authorization object BPM_DETAIL has not been assigned to the user, call the User Information System on the SAP Solution Manager system via transaction SUIM. There, use node ‘Roles’ → ‘By Authorization Object’. In the next screen, enter ‘BPM_DETAIL’ in field ‘Authorization object’ and choose ‘Execute’.

The following screen displays all roles that contain the authorization object.
Assign one of the roles containing the authorization object to the concerned dialog user. Ensure that the role is generated in its current version. If you assign a composite role, ensure that within the composite role the single role containing the authorization object is generated in its current version.

If no role exists containing the authorization object, assign the object to an existing role or create a new role ‘Z_BPM_DETAIL’ with authorization object BPMDETAIL. See SAP note 784752 for further details. After you have assigned the authorization object to the role, generate the new version of the role and assign the role to the concerned dialog user.

**Solution 2:**

To check whether the dialog logon to the managed system is configured to happen via trusted RFC destinations, start by checking which RFC destination is assigned for the dialog logon. To do so call transaction SMSY on the SAP Solution Manager system and check the RFC entry as described in chapter 2.1.

If no RFC destination is assigned for dialog logon, generate the RFC destination as described in chapter 2.1. Afterwards, call transaction SM59 on the managed system and double-click on the name of the RFC destination you just identified in SMSY. In the new screen, go to tab ‘Logon & Security’ and check which flag was set for ‘Trusted System’.

If the flag was set, check whether the concerned dialog user has sufficient authorizations to log on to the managed system via a trusted RFC destination and whether the trusted relationship between the SAP Solution Manager system and the managed system has been correctly configured. To do so, proceed as described in **Solution 3** of problem 4.2.3.

### 7.2 Alert Handling Errors for specific Monitoring Functionalities

#### 7.2.1 Detail Info List for IDoc monitoring does not work for all alerts

**Symptom:**

You have activated monitoring for IDocs via the corresponding application monitor. You have chosen to use the ‘Delta’ mode for the monitoring of IDoc. Now you have received alerts. When you try to execute the ‘Detail Info’ functionality for the alerts, for some older alerts no Detail Info list is created.
Possible Root Cause:

This a most likely not a bug.

When you execute the ‘Detail Info’ functionality for an IDoc, all IDocs that were saved within the BPMon infrastructure as being responsible for this alert are displayed.

However, IDocs can be reprocessed. If there have been reprocessed they may be alerted on again by the IDoc monitoring object. In this case, the IDoc is deleted from the list for the previous alert and only stored in the list of the more current alert. Thus the IDoc will no longer appear in the list for the older alert but only in the list for the more current alert.

Example:

You monitor IDocs of type MATMAS in status 51 in delta mode once per hour. At 09:00 such an IDocs is created and causes a yellow alert with measured value 1. The IDoc number is stored in the BPMon infrastructure as being associated to the alert at 09:00. If you execute the Detail Info list for the 09:00 alert at 09:15 the list show the IDoc.

At 10:15 an automatic reprocessing job unsuccessfully reprocesses the IDoc. It stays in status 51. However, during the reprocessing, a new status record with the time stamp 10:15 is created.

At 11:00 the IDoc monitor alerts again on the IDoc. With this alerting, in the BPMon infrastructure the IDoc number is deleted for the 09:00 alert and now stored for the 11:00 alert. Therefore, if you execute the ‘Detail Info’ functionality at 11:10 only the Detail Info list for the 11:00 alert will display the IDoc. The Detail Info list for the 09:00 is now empty.
8 Self Monitoring Capabilities for Business Process Monitoring

8.1 Self Monitoring

With the activation of Business Process Monitoring, not just the data collection for the configured alerts is started, but the BPMon Self Monitoring is activated as well. The self monitoring is accessible via the BPMon session and shows the alerts history for the data collectors for managed system:

The MTE collecting the status of the data collectors for the managed system is also accessible via the CCMS of the SAP Solution Manager system.

Typical error situations showing up in the Self Monitoring are:

- Data collector has reach a fatal error status (red alert)
- Data collector has not run for a very long time (yellow alert).

In addition to the status of the data collection, the Self Monitoring of BPMon also allows you access to the Data Collection Protocol in SAP Solution Manager. To see the data collection protocol, access the node for one of the managed systems and go to tab ‘Data Collection Protocol’.
The Data Collection protocol displays application log messages that were written for the solution containing the business process. You can also check these messages directly in SLG1 of the SAP Solution Manager system.

8.2 Application Log Messages written by the BPMon infrastructure

The BPMon infrastructure writes at various stages information into the general Application Log and can be displayed there with transaction SLG1. All BPMon relevant information is written into object SOLAR and subobjects starting with BPMON*
The External ID for these logs consists of:

- Indicator which part of the infrastructure is concerned:
  - DCOL = Data Collection (entries written by the BPMon engine during data collection)
  - FUPR = Further Alert Processing (entries written during email sending and service desk creation)
  - REORG = Alert Reorganization (entries written during alert reorganization)
  - GENM = Generation of Monitoring Customizing (contains generation protocol)
  - ACTM = Activation of Monitoring Customizing (contains activation protocol)
  - DCTM = Deactivate Monitoring Customizing (contains deactivation protocol)

- Solution_MonID
- SID of managed system
- Monitoring type

**Example for External ID:**

DCOL<SMJ/0020270862/0001243200_0020270862><SMQ><JOBMON>

This external ID shows that the application log was written during the data collection (DCOL) for background job monitoring (JOBMON) on managed system SMQ, with the data collection being triggered by the solution with the MonID SMJ/0020270862/0001243200_0020270862.

To display the information contained in the application log, go to the respective subnode of the log. This opens the content of the log at the bottom of the screen. The message text for the error messages gives you details about the problems encountered.

Depending on the error message a long text may be available.
Per default only error messages for the BPMon data collection are written into the Application Log. This means of there are no error messages, no log entries are written for the BPMon data collection. For troubleshooting it can sometimes be necessary to also have information and warning messages written into the application log. The writing of these messages can be switched on for a specific time frame from within the BPMon session in node ‘Self Monitoring’. Since the BPMon session is available per business process, this will only switch on the writing of information and warning messages for that particular business process.

There, use button ‘Switch Trace On’ to set the time range in which information and warning messages are written for BPMon application log entries.
Start of processing on 08.10.2010 at 15:40:19

RFC server group parallel_generators RC

End of processing on 08.10.2010 at 15:40:19
9 Further useful information

9.1 How to find out the solution clear name for a Solution MonID

In some cases it might be interesting to find out what the clear name of a solution is if you only know the Solution MonID. This can be achieved via function module DSWP_BPM_GET_OBJECT_DESCR_DB. Call transaction SE37. Enter the name of the function module and select ‘Test’.

![Function Module Test](image)

In the next screen enter the Solution MonID in field PF_SOLUTION.

![Import Parameters](image)

In the result screen, the clear name for the solution is displayed in field PF_SOLUTION_NAME.

![Export Parameters](image)

9.2 How to turn on Application Statistics

The BPMon infrastructure is capable of writing application statistics in addition to the ‘normal’ statistical records of transaction STAD. The application statistics have to be switched on via transaction ST03N on the SAP Solution Manager system and on the managed system.

In transaction ST03N, open the tree to ‘Collector and Performance DB’ → ‘Statistics Records & File’ → ‘Online Parameters’ → ‘Application Statistics’. In the following screen, select to have application statistics displayed for SAP functions and save your entry.
Once you have activated the application statistics you can display the application statistical records via transaction STAD. Enter the user for which you would like to display the application statistics and flag ‘Include application statistics’. Afterwards, press ‘Enter’.

In the display of the statistical records, the application statistics are marked in orange. The string visible in column ‘Program’ always starts with ‘FI’ and additionally consists of the Mon_ID of the involved monitoring object and the time stamp of the statistical record. To get information about what part of the processing in the BPMon engine the statistical record belongs to, double click on the ‘FI***********’ string in column ‘Program’.
The double click opens a pop-up containing details for the statistical record.

Application statistics are written by the BPMon engine on the SAP Solution Manager system as well as by the data collectors on the managed system.

On the SAP Solution Manager, the BPMon engine writes application statistic records for the data collection for each active monitoring object and for the processing of BAdIs implemented in enhancement spot ENH_SPOT_DSWP_BPM_NOTIF. The records are written via function module DSWP_BPM_ASTAT_OPEN and DSWP_BPM_ASTAT_CLOSE.

For the relevant application statistic records field ‘Application Info’ contains the information which part of the processing in the BPMon engine created the record. Records created by the data collection have an application info starting with ‘DataColl’, followed by the MonID, the monitoring type and the SID of the involved managed system.

Application statistic records written for the processing of one of the implemented BAdI start with different entries in field ‘Application Info’, depending on which BAdI has been implemented:

- **SDCuBAdI**: Implementation of BADI_CUSTOM_SUPNOTIF for custom-specific service desk messages
- **NfCuBAdI**: Implementation of BADI_CUSTOM_MESSAGE for custom-specific alert notifications
- **SDTxBAdI**: Implementation of BADI_BUILD_SUPNOTF for custom-specific service desk message texts
- **NfTxBAdI**: Implementation of BADI_BUILD_MESSAGE custom-specific alert notification texts
On the managed system, application statistics are written by the user executing the data collection (i.e. the user maintained in the READ RFC destination for the managed system). The records are written regardless of whether the data collection was executed directly via RFC or via background job.

The ‘Application Info’ for these records is ‘BPM Data Collection run’.

The key for the application statistic records on the managed system consists of the following information:

\[ FI<\text{SID of Solution Manager}><\text{MonID}><\text{Technical name of monitoring object}><\text{key figure number}> \]

In the above screenshot, the applications statistics record was created on the managed system by a data collector for monitoring object SD0001 (Sales and Services), key figure 21 (Orders (GI date in past but not delivered)). The MonID on the SAP Solution Manager system TT4 is 000000366920000.

The application statistic records can be used to analyze the performance of the various parts of the processing of the BPMon engine and the data collectors. The records can also be used to check whether specific parts of the processing were executed at all.