BI Monitoring Configuration with SAP Solution Manager 7.1

Active Global Support
2011
Prerequisites
Check Prerequisites
Version Prerequisites and Managed System Configuration

- Solution Manager 7.1 as of SP1 (with SP1 several additional notes are required, summary note: 1558756)
- Web Application server system(s) used in the BO scenario
  - As of now only Tomcat is supported
  - As of SolMan 7.1 SP2 also SAP J2EE and WebSphere Web Application servers are supported
- BO server system(s)
  - As of now only Business Objects Enterprise XI systems as of version 4.0 is supported
  - As of SolMan 7.1 SP2 also Business Objects XI 3.1 with limitations and additional note (1574995)
- SAP BW system(s)
  - As of now only SAP BW system as of version 7.0 are supported
- Check whether the “Managed System Configuration” and the “System Monitoring Setup” have been executed successfully for the systems you want to include in the BI monitoring scenario
BI Monitoring Configuration

General Preparation Steps
Entry point into BI Monitoring Scenario

The BI Monitoring Configuration is part of Technical Monitoring Configuration

- Accessible via item “Technical Monitoring” within the workcenter “SAP Solution Manager Configuration” (transaction code SOLMAN_SETUP)
- Allows an easy, fast and step-by-step configuration of BI Monitoring
Precondition Checks and Managed System Preparation

- Step 2 “Configure Infrastructure” covers the sub-steps required to prepare the managed systems to be included in the BI monitoring scenario as well as generic preparation steps for enabling the monitoring infrastructure within Solution Manager.
- Step 2.1 includes and infrastructure prerequisites check that will automatically detect missing steps in general infrastructure setup (e.g. not yet executed Basic Setup of Solution Manager).
  - Execute this automatic check and follow-up on potentially missing basic setup steps
  - Additionally follow note 1558756 which explains the prerequisites of software versions to be deployed on the managed systems involved in the BI monitoring scenario (this includes especially the version of the ST-A/PI ABAP addon within the monitored SAP BW systems as well as a patch for the BO server system if the BO system version is below 4.0 SP2)
Content Customization Adjustments (optional)

- In Step 2.2 all activities marked (optional) can be ignored.
- The remaining activity “Content Customization” allows you to adjust the alert reporting output format. Typically this is also not required to be changed. This step is identical for all monitoring scenario types and not specific to BI monitoring. Therefore it is not explained in full detail here.
General Setup of Monitoring Infrastructure

• Step 2.3 includes general setup activities which are important for any monitoring scenario to properly work.
  • All activities should have been executed successfully. If other monitoring scenarios have already been setup these activities may already have a green status and you can just continue.
  • If other monitoring scenarios (e.g. System Monitoring) already have been setup all required activities should have already been executed and you can just confirm the status by clicking “Next”.

![Diagram of monitoring setup process]
Default Settings for Alert Reaction

- Step 2.4 allows to customize general behavior on how to react on alerts produced within any monitoring scenario.
  - You can enable automatic creation of incidents and notifications and define the channels and persons to be informed via notifications.
  - This customization is not specific to the BI monitoring configuration and therefore not explained in detail here.
Define Workmode Settings

- Step 2.5 allows to customize workmode settings.
  - You can defined whether BI monitoring shall be enabled or disabled under certain workmode conditions
  - These settings affect only the workmode behavior for BI monitoring scenarios – not for the system monitoring of the systems involved in BI monitoring scenarios.
  - The business hours, downtimes, etc. can be defined per BI monitoring scenario in the “Technical Administration” workcenter under “Work Mode Management”.
  - By default the BI monitoring will be enabled at all times except for “Planned Downtimes”.

![Workmode Settings](image)
Update SAP Monitoring Template Content (optional)

- Step 3 allows you to update Solution Manager with the latest monitoring template definitions.
  - Newly updated content will have effect to subsequently executed monitoring template assignments
  - Content version 4 is the minimum version required (SolMan 7.1 SP1 initially comes with an older version)
BI Monitoring Configuration

BI Monitoring Scenario Specific Configuration Steps
Create New BI Monitoring Scenario

- Step 4 allows you to define the scope to be covered by a BI monitoring scenario
  - First you need to “Create” a new BI monitoring scenario and give it a unique name.
BI monitoring scenario

This picture shows a typical BI scenario (between backend systems and end user). Two monitoring levels are provided:

- System level monitoring for the involved technical systems
- Monitoring of important BI objects (process chains, queries, templates, BO jobs)
Create New BI Monitoring Scenario

- A new BI monitoring scenario is defined via a guided procedure
  - Step 1: In the first step you have to enter a unique name for the BI monitoring scenario and a description text.

The scenario name will be converted to upper-case
Create New BI Monitoring Scenario

- Step 2: here you need to select the technical systems that shall be included within your BI monitoring scenario
  - In the first step you have to enter a unique name for the BI monitoring scenario and a description text.

BO Web Application servers may be selected of type Tomcat, SAP J2EE, WebSphere

For SAP BW systems the ABAP and Java parts have to be entered separately the Java part is optional and will add the standard system level monitoring for SAP J2EE

SAP BI Platform systems (Business Objects Enterprise)

Only objects from selected technical systems can be monitored in a BI monitoring scenario (example: if you want to monitor a process chain defined within a SAP BW system you have to include that SAP BW system in the BI monitoring scenario)

Any layers system list may remain empty if no such systems exist or shall not be monitored
Create New BI Monitoring Scenario

- Step 5: confirm / save selected system for BI monitoring scenario

Systems may be added or removed also later on via the “Maintain” button in the scenario selection

At least one system has to be present in the scenario before you can save it
Select BI Monitoring Scenario for monitoring setup

- After the BI monitoring scenario is created you are back in the BI monitoring configuration roadmap in Step 4 “Define Scope”
- You should now verify that the “Managed System Configuration” and “System Monitoring Configuration” has been done for all systems that are included in your BI monitoring scenario
- Via “Next” you enter the BI monitoring specific configuration for the selected scenario

Monitoring & Alerting Setup Status shows the worst case status of the different steps of BI Monitoring setup

System Monitoring Configuration is a mandatory step before you can start with BI Monitoring setup

Managed System Configuration status should be green for all systems in the scenario before you continue the BI Monitoring setup

You can jump to the manages system configuration from the BI Monitoring Scenario details view per involved system via the “Managed System Configuration” button (after selecting the system)
Monitoring & Alerting configuration for Selected Scenario

- Step 5 “Monitoring & Alerting” consists of the detailed sub-steps for the configuration of all BI specific objects to be monitored (BO jobs, BW process chains, BW queries, BW templates)
- The overview screen shows the status information for each sub-step
- The last sub-step is required for activating any changes performed in the configuration sub-steps
- You can either go through all sub-steps sequentially via “Next” or directly jump to the sub-check you want to perform (clicking on the sub-step number or on a line in the steps list)
Monitoring & Alerting configuration: BO Jobs

- Step 5.1 “Configure BO Job Monitor” allows to define BO jobs to be monitored and per monitored job the metrics and thresholds to be checked for alerting
  - First you have to define the BO jobs which you want to monitor via “Add / Remove jobs from Monitoring”
Selected BO Jobs for Monitoring

- The BO job selection dialog operates in three steps:
  1. Retrieve a list of jobs from the BO system matching given filter criteria (via “Get Jobs from Managed System”)
  2. Add one or more or the retrieved jobs to the list of jobs assigned for monitoring
  3. Confirm list of assigned jobs (via “OK”)

Select the BO server system in the scenario from which you want to monitor jobs.

You can reduce the retrieved job list by job name (wildcard * allowed), BO job type and user name of the job owner.

You can execute the “Get Jobs...” function multiple times with different filter criteria to build up the monitored job list step by step.

If previously already BO jobs were assigned for monitoring the assigned jobs list will be prefilled.

By moving jobs from assigned to retrieved list they can be removed from monitoring.
Configure Details for Monitored BO Jobs

- After BO jobs have been assigned for monitoring you can configure details per monitored job
  - Define general settings (switch on/off data collection and/or alerting)
  - Define thresholds
  - 4 metrics can be monitored per BO job: execution status, start time delay, execution time window, duration

<table>
<thead>
<tr>
<th>Technical System</th>
<th>Job ID</th>
<th>Job Name</th>
<th>Job Type</th>
<th>Collect data</th>
<th>Alerting active</th>
<th>Monitor status?</th>
<th>Net started on time (UTC) hh:mm</th>
<th>Net started on time yellow (min)</th>
<th>Net started on time red (min)</th>
<th>Time Window (UTC) hh:mm - hh:mm</th>
<th>Out of time window yellow (min)</th>
<th>Out of time window red (min)</th>
<th>Yellow duration (min)</th>
<th>Red duration (min)</th>
</tr>
</thead>
<tbody>
<tr>
<td>VMW00000-BOJ</td>
<td>24762</td>
<td>Cortez_Bug_Report</td>
<td>CrystalReport</td>
<td></td>
<td></td>
<td></td>
<td>10:00</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Switch on/off metric data collection
Switch on/off monitoring of job return status (default = on). Unsuccessful job execution will result in red alert. Only finished jobs are taken into account.

Expected job start time (UTC). Not started on time thresholds are measured against this reference timestamp.

Thresholds in minutes for job start delay. No job start event found within „Not started on time“ timestamp + threshold raises alert.

Expected time window (UTC) for the job to start and finish within. Out of time window thresholds are measured against this reference time frame.

Thresholds in minutes for job started too early or finished too late

Thresholds in minutes for job run duration in minutes

Leaving yellow and red thresholds blank disables the related metric to be monitored (e.g. start delay will not be monitored if all „Not started on time...“ fields are empty

Inconsistent threshold values or invalid time settings will not be accepted details can be found in the log section via the „Show“ link
BO Job Monitoring – Metric Usage

**Status:**
Usage: If a BO job must not run into an error
Alert: You can specify, if you want to get an alert if the BO job runs into an error
Example: Defined value is TRUE, if the BO job has finished unsuccessfully you get an alert

**Not started on Time:**
Usage: If a BO job must not start later than a fixed point in time. Can be used for daily / less frequent executions when scheduled on fixed time basis where the start time is always the same. Currently not usable for jobs running multiple times per day or on different times on different days.
Alert: You can specify the latest point in time of a day and the max. allowed number of minutes to be late for the start
Example: Defined time is 14:00 and max. delay 5 min, if the bo job has not started until 14:05 you get an alert

**Out of time Window:**
Usage: If a BO job has to run in a fixed time window. Can be used for daily or less frequently executed jobs without a time based schedule (event based) where the expected time window is always the same. Currently not usable for jobs running multiple times per day or on different times on different days.
Alert: You can specify the time window in which the BO job has to run and the maximum number of minutes allowed to miss it
Example: Time frame 04:00 – 07:00, 10 minutes, if the BO job starts before 3:50 or ends after 7:10 you get an alert

**Duration:**
Usage: If a BO job must not run longer than a specified time period (defined in minutes).
Alert: You can specify the number of minutes BO job can run
Example: Duration 120 minutes, if the BO job runs longer than 2 hours you get an alert
Configure Details for Monitored BO Jobs

• Per job you can define data collection details (after selection the job)
  • Collection interval
  • Via the “Advanced” flag you can flexibly define a time interval when data collection shall be active.
    By default it will be active all the time.
  • Setting up a flexible data collection time interval makes sense and is recommended for any jobs that run only once per day of even less frequent to avoid data collection overhead.

Keep in mind that the data collection time frame may need to be adjusted if the job schedule is changed.
Configure Details for Monitored BO Jobs

- Per job you can define how to react on alerts produced for this job monitoring
  - Creation of incident tickets
  - Notification of persons or groups
  - Default settings are inherited from the global settings (as defined in Step 2.4)

Incidents settings that can be adjusted:
- Automatic creation of incidents (on/off)
- Support component to assign the ticket to
- SAP CRM type for the ticket
- Automatically close alert when ticket is confirmed (on/off)

Notification settings that can be adjusted:
- Automatically notify recipients on alert (on/off)
- Recipients can be added/removed
Monitoring & Alerting configuration: BW Process Chains

- Step 5.2 “Configure BW Process Chain Monitor” allows to define SAP BW Process Chains to be monitored and per monitored process chain the metrics and thresholds to be checked for alerting
  - First you have to define the BW process chains which you want to monitor via “Add / Remove process chains from Monitoring”

It is also possible to monitor single steps of a process chain
Selected BW Process Chains or Steps for Monitoring

- The BW process chain/step selection dialog operates in three steps
  1. Retrieve a list of process chains and their single steps from the BW system matching given filter criteria (via “Get Process Chains & Steps from Managed System”)
  2. Add one or more or the retrieved process chains or single steps to the list of chains/steps assigned for monitoring
  3. Confirm list of assigned process chains/steps (via “OK”)

Select the BW ABAP system in the scenario from which you want to monitor process chains

You can reduce the retrieved process chain list by chain name pattern (wildcard * allowed), step job type, and variant name pattern

If previously already BW process chains/steps were assigned for monitoring the assigned chain list will be prefilled

By moving entries from assigned to retrieved list they can be removed from monitoring

You can execute the „Get Jobs...“ function multiple times with different filter criteria to build up the monitored job list step by step
Configure Details for Monitored BW Process Chains

- After BW process chains/steps have been assigned for monitoring you can configure details per monitored process chain/step
  - Define general settings (switch on/off data collection and/or alerting)
  - Define thresholds
  - 6 metrics can be monitored per process chain/step: execution status, execution time window, start time delay, duration, min processed records, max processed data packages

Switch on/off metric data collection
Switch on/off alerting

- Last 24 hour executions are taken into account
- For status and records/data packages processed only finished executions are taken into account

Expected time window (UTC) for the process chain/step to start and finish within. Out of time window thresholds are measured against this reference time frame. Metric value is the sum of minutes started before and finished after time window.

Expected start time window (UTC) for the process chain/step to start. Out of time window thresholds are measured against this reference time frame.

Thresholds in minutes for process chain/step run duration

Records and data packages processed are only relevant for process chain steps that are loading data. For a process chain the sum of all load step packages is used.

By default you need to scroll through the threshold columns
Process Chain Monitoring – Metric Usage

**Status:**
Usage: If a process chain must not run into an error
Alert: You can specify, if you want to get an alert if the process chain runs into an error
Example: Defined value is TRUE, if the process chain has status RED you get an alert

**Duration:**
Usage: If a process chain must not run longer than a dedicated time period
Alert: You can specify the number of minutes the process chain can run
Example: Time period 120 minutes, if the process chain runs longer than 2 hours you get an alert

**Out of time Window:**
Usage: If a process chain has to run in a fixed time window. Can be used for daily or less frequently executed jobs without a time based schedule (event based) where the expected time window is always the same. Not to be used in other situations.
Alert: You can specify the time window in which the process chain has to run and the max. number of minutes allowed to miss it
Example: Time frame 04:00 – 07:00, max 10 min, if the process chain starts before 3:50 or after 7:10 you get an alert

**Not started on Time:**
Usage: If a process chain must not start later than a fixed point in time. Can be used for daily / less frequent executions when scheduled on fixed time basis where the start time is always the same. Not to be used in other situations.
Alert: You can specify the latest point in time of a day and the max. number of minutes allowed to be late for the start
Example: Defined time is 14:00, if the process chain has not started until 14:05 you get an alert

**Records processed:**
Usage: If a process chain must process at least a number of records. Typically used to detect if input data is missing (0 records).
Alert: You can specify the minimum number of records you expect
Example: Defined value is 1, if the process chain returns 0 records you get an alert

**Data packages processed:**
Usage: If a process chain should not exceed a fixed number of data packages. Typically used to detect required adjustment of package size when total volume increases (too many parallel packages may cause performance decrease).
Alert: You can specify the maximum number of data packages you expect
Example: Defined value is 100, if the process chain processes 101 data packages you get an alert
Monitoring & Alerting configuration: BW Queries

- Step 5.3 “Configure BW Query Monitor” allows to define SAP BW Queries to be monitored and per monitored query the metrics and thresholds to be checked for alerting
  - First you have to define the BW queries which you want to monitor via “Add / Remove queries from Monitoring”
Selected BW Queries for Monitoring

- The BW query selecting dialog operates in three steps
  1. Retrieve a list of BW queries from the SAP BW system matching given filter criteria (via “Get Queries from Managed System”)
  2. Add one or more or the retrieved queries to the list of queries assigned for monitoring
  3. Confirm list of assigned queries (via “OK”)

Select the SAP BW ABAP system in the scenario from which you want to monitor BW queries

You can reduce the retrieved query list by query name (wildcard * allowed)

You can execute the „Get Queries...“ function multiple times with different filter criteria to build up the monitored query list step by step

If previously already BW queries were assigned for monitoring the assigned query list will be prefilled

By moving queries from assigned to retrieved list they can be removed from monitoring
Configure Details for Monitored BW Queries

- After BW queries have been assigned for monitoring you can configure details per monitored query
  - Define general settings (switch on/off data collection and/or alerting)
  - Define thresholds for duration (in seconds)

<table>
<thead>
<tr>
<th>Technical System</th>
<th>Query</th>
<th>Collect data</th>
<th>Alerting active</th>
<th>Avg. Query Runtime (Yellow)</th>
<th>Avg. Query Runtime (Red)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST7-ABAP</td>
<td>OSN_DVM_TABLE_SIZE_LAST_MONTH</td>
<td>✔</td>
<td>✔</td>
<td>19</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>Z_QUERY_RFC_STATISTICS</td>
<td>✔</td>
<td>✔</td>
<td>5</td>
<td>10</td>
</tr>
</tbody>
</table>

Switch on/off metric data collection
Switch on/off alerting

Thresholds in seconds for query run duration. Run duration is the average runtime of the last 60 minutes.
Monitoring & Alerting configuration: BW Templates

- Step 5.4 “Configure BW Template Monitor” allows to define SAP BW Templates to be monitored and per monitored template the metrics and thresholds to be checked for alerting
  - First you have to define the BW templates which you want to monitor via “Add / Remove templates from Monitoring”
Selected BW Templates for Monitoring

- The BW template selection dialog operates in three steps
  1. Retrieve a list of BW templates from the SAP BW system matching given filter criteria (via “Get Templates from Managed System”)  
  2. Add one or more of the retrieved queries to the list of templates assigned for monitoring  
  3. Confirm list of assigned templates (via “OK”)  

Select the SAP BW ABAP system in the scenario from which you want to monitor BW templates

You can reduce the retrieved template list by template name (wildcard * allowed)

You can execute the “Get Templates...” function multiple times with different filter criteria to build up the monitored template list step by step

If previously already BW templates were assigned for monitoring the assigned template list will be prefilled

By moving templates from assigned to retrieved list they can be removed from monitoring
Configure Details for Monitored BW Templates

- After BW templates have been assigned for monitoring you can configure details per monitored template
  - Define general settings (switch on/off data collection and/or alerting)
  - Define thresholds for duration

<table>
<thead>
<tr>
<th>Technical System</th>
<th>Template</th>
<th>Collect data</th>
<th>Alerting active</th>
<th>Avg. Template Runtime (Yellow)</th>
<th>Avg. Template Runtime (Red)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST7~ABAP</td>
<td>0ADHOC_CHART_LIB</td>
<td>✔</td>
<td>✔</td>
<td>10</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td>0ADHOC_INFOS</td>
<td>✔</td>
<td>✔</td>
<td>5</td>
<td>7</td>
</tr>
</tbody>
</table>

Switch on/off metric data collection
Switch on/off alerting
Thresholds in minutes for template run duration
Activation of all BI Monitoring Configuration Changes

- Step 5.5 “Activate BI Monitoring” allows you to review all changes before making them effective.
  - All changes made to the different BI monitoring areas (BO jobs, BW process chains, BW queries, BW templates) are listed. Changes may be added/removed objects or threshold changes.
  - The “Activate BI Monitoring” button will make all changes effective.
Activation of all BI Monitoring Configuration Changes

- Step 5.5 “Activate BI Monitoring” allows you to review all changes before making them effective.
  - All changes made to the different BI monitoring areas (BO jobs, BW process chains, BW queries, BW templates) are listed. Changes may be added / removed objects or threshold changes.
  - The “Activate BI Monitoring” button will make all changes effective.

Per activated monitored object a log message is created.
Activation of all BI Monitoring Configuration Changes

- Step 6 “Complete” gives an overview on the success status of each step and sub-step of the BI Monitoring Configuration
  - All steps and sub-steps should have a green status
  - Press “Finish” to
Thank You!

Contact information:

F name Ml. L name
Title
Address
Phone number
<table>
<thead>
<tr>
<th>The Grid</th>
</tr>
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<tbody>
<tr>
<td></td>
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<tr>
<td><strong>Headline area</strong></td>
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<td><strong>White space</strong></td>
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<td><strong>Drawing area</strong></td>
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