How to work with BI Monitoring
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Agenda

This demo introduces the BI Monitoring application and shows how to work with the below mentioned BI Monitoring applications.

- **Introduction**
- **BI Overview Monitor**
- **System Monitor**
  - BO WebApp Systems
  - BO Server Systems
  - BW ABAP/Java Systems
- **BI Detail Monitors**
  - BO Job Monitor
  - BW Process Chain Monitor
  - BW Report Monitor
Introduction - Monitoring for Business Intelligence

- Central system status overview for all technical components involved in SAP Business Intelligence Solution
- Capability to monitor cross-system SAP BW process chains and single process chain steps
- Central monitoring of SAP BW queries and templates
- Central monitoring of Business Objects specific jobs and correlation to system specific metrics
- Integration of Business Intelligence specific alerts in Alert Inbox including Notification Management, Incident Management, Task Assignment and forwarding to 3rd party
Introduction – Monitored BI scenario and objects

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)
SAP BusinessObjects Business Intelligence 4.0
Architectural Overview (simplified)
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- Introduction
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BI Overview Monitor – How to Start...

BI Monitoring

Allows monitoring of all components of a SAP Business Intelligence solution such as Business Objects Web Server, Business Objects Server, and Business Warehouse.
BI Overview Monitor – How to Start...

1. Select a scenario...

2. Start the BI Overview monitor by choosing „Start Embedded“ or „Start in New Window“
BI Overview Monitor – Initial View

The overview is grouped by the BI component types in your scenario.

Total number of alerts for the specific BI component type.

System Monitoring status (availability, performance and exceptions).

Status of the monitored BI applications (BO jobs, BW process chains and queries and templates).
The BI Overview Monitor shows at a glance the summary of the current status and the open alerts of all BI components that are included in your technical scenario.

Summary of alerts and status worst case of all systems in the same BI component type (web app, BO, BW)

Alert (summary)
Technical instances status (worst case)
BI monitored objects status (summary)
System + host level status (worst case)
BI Overview Monitor – Detail View (BO Web App)

Clicking on a component type in the BI overview monitor expands the underlying single systems and technical instances with their separate alert and status aggregation per system resp. technical instance.
BI Overview Monitor – Detail View (BO System)

Two BO systems

Technical instances of a BO system
BI Overview Monitor – Tabular View

Switch between Graphical and Tabular View

<table>
<thead>
<tr>
<th>Component</th>
<th>Component Type</th>
<th>Alerts</th>
<th>Availability</th>
<th>Performance</th>
<th>Exceptions</th>
<th>BO Jobs</th>
<th>BW Process Chains</th>
<th>BW Reporting</th>
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<tbody>
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<td>BO Web Application Systems</td>
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Allows comprehensive overview for large number of instances
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  - BO Server Systems
  - BW ABAP/Java Systems
- BI Detail Monitors
  - BO Job Monitor
  - BW Process Chain Monitor
  - BW Report Monitor
System Monitoring for systems in BI monitoring scenario

This picture shows a typical BI monitoring scenario and the monitored technical objects:

- The involved technical systems in a full scope BI monitoring scenario include
  - BO Web Application Systems (with SP1 only Tomcat is supported for system monitoring). For SP2 SAP J2EE and WebSphere are planned to follow
  - BOBJ server systems.
  - SAP BW systems. Technically the SAP BW systems may consist of a ABAP type system and a SAP J2EE type system
- The system monitoring for each involved system has to be setup separately via the system monitoring setup
- System monitoring for each system can be viewed via the system monitoring UI or as jump in from the BI monitoring UI

With enhancements for BO web application

Completely BO specific

„classical“ ABAP / SAP J2EE system monitoring (no BW specifics)
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Example: BO Web Application Systems Monitor

The BO Web Applications System Monitor shows the single BO Web components that are part of your technical scenario.

Each single instance of a BO Web component is shown including details like number of alerts, availability status, performance status and exception status. A direct start of the system monitoring application for each BO Web instance is provided.

Drill down to the system monitoring application system hierarchy by clicking on the icon of a System Monitoring category you are interested in.
Example: BO Web Application Systems Monitor

Select a System Monitoring category you are interested in, for example “Performance”
Example: BO Web Application Systems Monitor

The performance category and its subcategories are shown.

In the details section you can investigate now the single performance-relevant metrics.
Example: BO Web Application Systems Monitor

By changing the view category you can directly switch between the single categories to Performance...

... and examine the metric details...
BI System Monitor – BO Web Application metrics

Available of BOE InfoView web application (HTTP ping from SMD agent)

Introscope metric tree

Avg. Response time of open session action

Exceptions in BI launchpat = InfoView application or in Query As a Web Service QaaWS calls (Log file scanning via SMD agent)
System Monitoring for BO Web Application System

- The system monitoring for the BO Web Application System provides all general system monitoring capabilities for the underlying web application system plus specific monitoring for BO web application metrics.

- Currently the following BO web application specific metrics are provided:
  - Category Availability: regular http ping check for the BO InfoView web application (web UI for BOE). The URL is defined during managed system setup and stored in the Solution Manager URL framework.
  - Category Performance: average response time of BO web application frontend calls (Introscope metric)
  - Category Exceptions: any message of type ERROR in the BO web application log of the InfoView webapp. More specific ERROR patterns can be customized by the customer based on customer need / experience.
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BO Enterprise System Model

Software component
Monitoring templates per software component defined on technical instance level (corresponds to BO server types)

Technical instances
Many types of BO server processes exit. Different types correspond to different BO product instances

BOE Cluster
BOE node

Technical system
Currently no metrics on BO system level

BOE nodes are not modelled but each server process name has the node name as prefix

A complete list of BOE 4.0 services and their mapping to BO server types and SAP BO metric templates can be found here:
Example: BO Server Systems Monitor

- BO system wide job metrics / alerts
- Technical BO instances = BO servers
- For scrolling through all BO instances page by page
Example: BO Server Systems Monitor

For BO systems each BO server represents a technical instance. Each technical instance provides its own metrics and alerts.

Choose the category that you are interested in – like Availability - …
No BO specific metrics for performance or availability (SIA is the BO watchdog and not monitored itself) only receiving from Host level

Exception for unexpected BO server restarts reported in SIA log

For all other BO servers an inactive metric definition exists that can be adapted by customers
BI System Monitor – BO Server Systems metrics
Central Management Server

Avg. Response time of CMS queries and Logons
BI System Monitor – BO Server Systems metrics
File Repository Server

Avg. Read and Write response times
BI System Monitor – BO Server Systems metrics
Web Intelligence Processing Server

WebI server memory usage
The system monitoring for the BO Server System provides all general system monitoring capabilities for the underlying operating system plus specific monitoring for BO metrics.

Currently the following BO Server specific metrics are provided:

- **Category Availability**: BOE Server availability metric from Introscope (collected by BO monitoring service and offered via JMX)
- **Category Performance**: average response time of BO Server Introscope metric
- **Category Exceptions**: unexpected server stops logged in the SIA (Server Intelligence Agent) log (BO watchdog server)

More specific ERROR patterns can be customized by the customer based on customer need / experience. An inactive metric entry is available for BO server type in the SAP template.
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This demo shows how to work with the following BI Monitoring applications:

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  - BW Report Monitor
BO Job Monitor - Starting

In the BI Overview Monitor choose the BO Server Systems box...

... and click then on the traffic light section jobs
BO Job Monitor

The BO Job Monitor opens in a separate tab.

Monitored jobs are grouped by the BO system they belong to.

For each job you can see the status of each monitored metric:
- Not Started on Time
- Out of Time Window
- Duration
- Status
BO Job Monitor – metrics details

Delay in minutes of the last finished or currently running job run to the specified threshold timestamp (today if the timestamp is already reached or yesterday otherwise)

Maximum distance in minutes of the last finished or currently running job run to the specified threshold time window on the day where the window start timestamp has the closest distance to the job start time. 0 if the job start time is > window start time and job end resp. current time for running job is < window end time. See details on next slide.

Duration of last finished or currently running job run in minutes

Status of the last finished job run (= job instance)
Green if successful
Red if failed
BO Job Monitor – out of time window calculation examples

- Daily time window
- Job runs
- Closest window
- Reported metric value
BO Job Monitor – Checking Configured Thresholds

How to check the thresholds of your technical scenario? Go to the SAP Solution Manager Configuration - BI Monitoring. Choose your technical scenario and go to the step Configure BO Job Monitor.

Choose the job that you are interested in and check the thresholds…
BO Job Monitor – check job details in BO system

Select Navigate to and then Central Management Console (CMC)
For detailed analysis of a job in the BOE system

... and log on
BO Job Monitor – check job details in BO system

Start the Instance Manager...

Enter the selection criteria for your job of interest and click the Find button.
BO Job Monitor – check job details in BO system

Right click the job you are interested in and select “Instance Details” to see more details of this instance.
BO Job Monitor – check job details in BO system

Check the corresponding detail information for the alert you are investigating. In our case: check the error message to find the reason for the failed status.
BI Monitoring for BO Jobs

- The BI Monitoring for BO Jobs provides the following metrics for the execution of process chains in the Business Objects system:
  - **Performance:**
    - Duration
    - Not Started on Time
  - **Availability:**
    - Out of Time Window
  - **Exceptions:**
    - Status

Solution Manager (ABAP stack)

Extractor

Name = „DPC PUSH CORE“
SystemID=<SOLMAN-SID>
Extended Content=<BO server host name>

Solution Manager (JAVA stack)

Web-Service

„BOBJMonService“

External Name=
„BOBJMonServiceVI_Document“
Type= „Consumer Proxy“

BO Server system

SMD Agent

Agelet „e2email.bobj“

Agelet „remoteos“

Script „List Jobs“
„bobjnormal.jar“

BO Server
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In the BI Overview Monitor choose the BW Server Systems box…

… and click then on the traffic light in the section Process Chains
BW Process Chain Monitor

Monitored process chains/steps are grouped by the BW system they belong to.

Monitoring of complete process chains as well as single process chain steps is supported.

As of Solman 7.1 SP1 metrics are calculated from all process chain / step runs within the last 24h worst case values are reported. As of SP3 each single run may raise an alert.

For each job you can see the status of each monitored metric:
- Not Started on Time
- Out of Time Window
- Duration
- Status
- Records Processed
- Data Packages Processed
BW Process Chain Monitor – Starting the Analysis Transaction

1. Mark the BW process chain you want to investigate…

2. Start the BW Analysis Transaction by choosing Navigate to -> Analysis Transaction
The analysis transaction RSPC is started by default showing the previously chosen process chain...
You can use the SAP WebGUI session also for calling other analysis tools like ST13 (BW-TOOLS)…
BW Process Chain Monitor – Analysis with Workload Monitor ST03N
Open the alert inbox by clicking on the number of alerts or the traffic light of the BW process chain that you are interested in.
BW Process Chain Monitor – Alert Inbox for BI

1. Select the alert that you are interested in - for example BW Process Chain Records/Data Packages

2. Select the alert group that you want to investigate in greater detail

3. Choose the Show Details button
Check the details of the specific alert - like minimum, maximum and last measured value of the metric.
BI Monitoring for BW Process Chains

- The BI Monitoring for Process Chains provides the following metrics for the execution of process chains in the BW system:
  
  - **Performance:**
    - Duration
    - Not Started on Time
  
  - **Availability:**
    - Out of Time Window
  
  - **Exceptions:**
    - Status
    - Records Processed
    - Data Packages Processed

Solution Manager (ABAP stack)

Extractor

- Name = „DPC PULL CORE“
- SystemID = <BW-SID>
- Extended Content = „ST_PI“

BW system (ABAP stack)

ST-PI:
/ SDF/E2E_BW_PROCESSCHAINS

ST-A/PI:
BCC_BW_PC_MONITORING

RFC
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In the BI Overview Monitor choose the BW Server Systems box... 

... and click then on the traffic light in the section Reporting
BW Reporting Monitor

For each BW Query or Template you can see Average Response Time in seconds and the alerts.

Monitored queries / templates are grouped by the BW system they belong to.

Cross-Checking the thresholds works analog to the example shown in the section BO Job monitoring...

For each BW Query or Template you can see Average Response Time in seconds and the alerts.
BW Reporting Monitor – Analysis with Workload Monitor ST03N

1. Mark the BW Query or Template you want to investigate...

2. Start the BW Analysis Transaction by choosing Navigate to -> Analysis Transaction
1. Transaction ST03N opens in a SAPGui for HTML session

2. Choose section Queries: Bex Web (ABAP)

3. Check the details of the query you want to investigate
BI Monitoring for BW Queries & Templates

The BI Monitoring for Queries & Templates provides the following metrics for the execution of queries and templates in the BW system:

- **Performance:**
  - Average response time of queries
  - Average response time of templates

Solution Manager (ABAP stack) to BW system (ABAP stack) diagram:

- Extractor
  - Name = "DPC PULL CORE"
  - SystemID = <BW-SID>
  - Extended Content = "ST_PI"

- ST-PI:
  - /SDF/E2E_BW_QUERY_TEMPLATES

- ST-A/PI:
  - BCC_BW_QT_MONITORING

- BW