



Implementation Methodology

System Monitoring Setup Operations

Dietmar-Hopp-Allee 16
D-69190 Walldorf

CS	STATUS
Customer	published
DATE	VERSION
Sep-10 2008	3.0

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1 Management Summary

1.1 Overview of Current Methodology

System Monitoring describes a concept to monitor key figures for performing a qualitative and quantitative assessment of system operation. The main focus is to set up a proactive monitoring to prevent incidents, i. e. a preventative solution monitoring. This contrasts with the reactive monitoring and analyses using monitoring methods, which is triggered when an incident occurs. The objective to ensure system availability and performance stability is a prerequisite for frictionless operation and lower operational cost. The aim of the setup phase is to implement the *System Monitoring* and test the monitoring and management processes.

This implementation methodology should be regarded in conjunction with the implementation methodology for the other phases *Setup and Operations* and *Optimization* phase.

1.2 Run SAP Implementation Methodologies

As IT landscapes grow and solutions become increasingly mission-critical, the cost of successfully operating an IT landscape becomes a key business issue. To optimize operations and to reduce cost SAP has harnessed its experience with thousands of customers and created:

- *SAP Standards for End-to-End Solution Operations* that span customers' mission-critical operations landscapes and aim at reducing the risk of failure and increasing the skill base
- Run SAP, a robust operational methodology that underpins these standards and complements SAP's implementation methodology *AcceleratedSAP (ASAP)*
- *SAP Enterprise Support*, a support offering that enables *SAP Standards for End-to-End Solution Operations* at lower total cost and across mission-critical support systems

2 Setup Operations

2.1 Goal of the Setup Operations Phase

Based on the results of the *Design Operations* phase you should now perform the rollout of the new processes. Install the required technical infrastructure, e. g. *SAP Solution Manager*. Set up all defined and created scenarios. Test the existing and the new operational processes. Finally prepare the organization to deploy the new processes and tools.

2.2 Requirements and General Conditions for the Setup Operations Phase

Setup of the monitoring concept is divided into an initial setup and a continuous optimization of the initial settings. In the current document the initial setup will describe. The continuous optimization will be explained in the Run SAP phase *Operations and Optimization for System Monitoring*. In addition, a distinction is made between activities in the central part of the infrastructure and in the components that have to be monitored.

Before you start with the *Setup Operations* phase, make sure all deliverables of the *Design Operations* phase are available:

- Analysis of the existing processes, tools and possible interdependencies between new processes
- Blueprint document for the new processes and an efficient usage of the tools
- Test plan for the new operational processes

There are also some requirements for a successful setup needed:

- The availability of a dedicated system for central monitoring. This document is based on *SAP Solution Manager 7.0 EHP1*.
- The system landscape is entered in the *SAP System Landscape Directory (SLD)*. The landscape data is also defined in the repository of *SAP Solution Manager* (transaction *SMSY*).
- A *SAP NetWeaver Business Intelligence (BI)* system is required to collect long-term monitoring information. Either the *BI* in the *SAP Solution Manager* or, due to the volumes of data involved, another dedicated system can be used.

2.3 Essential Resources for the Setup Operations Phase

Before you start the *Setup Operations* phase, make sure you have all resources with the required skills in place. You will need in-depth technical knowledge of the *SAP Solution Manager* and other tools that will be used by the operations processes.

Furthermore you will need a test coordinator and testers to perform the testing activities and resources with skills in organizational change management in order to prepare the organization to deploy the new processes and tools.

2.4 Key Deliverables of the Setup Operations Phase

After successful completion of the *Setup Operations* phase you should have finished and tested the installation of the required technical infrastructure including the setup of all defined scenarios. The support organization is ready to manage the solution.

2.5 Steps to Implement Process

2.5.1 Initial System Monitoring setup

In the initial setup of *System Monitoring*, you have to perform the following activities:

1. Set up *SAP Solution Manager*
2. Configure *System Monitoring* in the *SAP Solution Manager* according to the documents mentioned in the *Accelerators*
3. Register the systems to be monitored in the central system. Use the *CCMS* agents to connect the monitored systems to the central monitoring system. Please see the *SAP NetWeaver Guide for Setup System Monitoring* in the *Accelerators* section
4. Define KPIs that are relevant for alerts generation and monitoring. In addition, define the KPIs that should be used for reporting purposes and their level of granularity.
5. Check the default SAP threshold values for these KPIs.
6. Review the documentation for the KPIs. Compile instructions, where it is described how to handle specific errors.
7. Review the assigned analysis methods for the KPIs.
8. Define and assign auto-reaction methods. Automatic notifications and execution of operating system commands are particularly significant here. For the notifications you can also use the *SAP Alert Management (ALM)*.
9. Setup data collection in *SAP NetWeaver BI*, which is usually done when *Root Cause Analysis* is set up.
10. Assign roles and work centers and set up the central alert inbox.

2.5.2 Initial reporting setup

2.5.2.1 Setting up/creating EarlyWatch Alerts

To set up *EarlyWatch Alert* see the following *Accelerators*:

- Help-Portal: *SAP EarlyWatch Alert*
- SAP Note 1257308 – FAQ: Using *EarlyWatch Alert*
- SAP Note 1040343 – *EarlyWatch Alert (EWA)* for Solutions
- SAP Note 976054 – Availability of *EWA* for non-ABAP components
- *SAP Online Knowledge Products: SAP Solution Manager*

In general you have to:

1. Set up *EarlyWatch Alert*
 - Including activation of sending to SAP (productive systems)
2. Create *EarlyWatch Alert*
 - *SAP EarlyWatch Alert* (for a system)
 - *SAP EarlyWatch Alert* for Solutions (all in the setup phase selected systems)

The *EWA* for Solutions enables its users to gain an overview of the current status of entire solution landscape within one consolidated report. The solution-based report consolidates KPIs generated by the regular *EWA* monitoring services and classifies them in order to identify potential areas for improvement, such as performance or stability.

2.5.2.2 Setting up Service Level Reporting

Setup/creation steps are explained on help.sap.com. See *Accelerator Help-Portal: Using Service Level Reporting*.

Setting up *Service Level Reporting* you have to consider the following information:

- Maintain general settings (report front page customizing, scheduling, etc.)
- Determine and maintain systems and contents for *Service Level Report* types
- Specify and maintain business processes
- Specify business processes based on *Business Process Monitoring* (statistics of *BPM* can be embedded into the *SLR*)

2.5.2.3 Setting up IT performance monitoring

Setup/creation steps are explained on help.sap.com. See *Accelerators Help-Portal: IT Performance Reporting* and *SAP Note 1223266 – IT performance reporting in SAP Solution Manager*.

During the setup steps you have to specify:

- RFC connection between *SAP Solution Manager* and the *SAP NetWeaver Business Intelligence*
- Lifetimes of the different aggregates in the *BI*
- Choose the MTE classes from the *CCMS* monitoring infrastructure which should be stored in the *SAP NetWeaver Business Intelligence (BI)*
- Data of your monitored systems, like system ID, installation number or RFC destination

2.6 Testing the Operational Process

To ensure a successful setup, several setup steps should be tested. Possible connection problems between the systems will cause none or insufficient alert data. For test purposes you should create at least one *EarlyWatch Alert* report right after the setup has finished. It is recommended to test the whole process of data collection, data storage, data display and alert generation.

2.7 Preparation of the Support Organization

To prepare the own organization you should address:

- People that are responsible for creating and managing reports in the involved systems. Offering of trainings are the right steps here.
- People that have to interpret the results of the provided reports and determine the effects on the involved systems.
- People that solve generated alert messages.
- People that can operate the monitoring solution in terms of adjusting the KPIs and threshold as part of the operation phase.
- Even if the monitoring solution is an automated proactive solution, there is still the need for manual expert monitoring. This need should be addressed.

2.8 KPI Monitoring Setup

You can verify the successful implementation of *System Monitoring* by installing a set of appropriate key performance indicators (KPIs) and measuring them before and after the implementation.

The KPIs proposed in this context are (table 1):

KPI	Measuring
Availability of <i>System Monitoring</i>	<i>System Monitoring</i> is set up and applicable

KPI	Measuring
Availability of related tool chain	Proven monitoring tools & procedures are available
Availability of automatic alerting	Immediate alerting for business-critical incidents is available

Table 1 KPI monitoring measure

Independently of the requirements for *System Monitoring* the following KPIs (table 2) from different categories shall be considered.

Category	Specification	Proposed Threshold Value
Availability	Heartbeat of a technical component	A missing heartbeat signals a failure of the technical component
Performance	Average general response time	Empirical value based on the standard response time. Above-average deviations should be signaled
	Response times of particularly important subcomponents or actions	The KPI values that endanger core business processes should be used as threshold values
Utilization capacity	Hardware: CPU, I/O, memory, operating system	
	Application: Memory, processes	
	Processing queue: Overflows	
Exception situations	Terminations of processing steps, such as short dumps or exceptions	
Security	Unauthorized access or frequently failed access	
	Users with security-relevant authorizations	
	Super user access	

Table 2 KPI categories

2.9 Setup of the SAP Solution Manager

Please see the standard SAP documentation to set up *SAP Solution Manager*.

Important *Accelerators*:

- Help-Portal: *SAP Solution Manager EHP1*

2.10 SAP Online Knowledge Products: SAP Solution Manager Configuration of the SAP Solution Manager

Please see the documentation from the *Accelerator* and the standard SAP configuration guide for the *SAP Solution Manager*.

Important *Accelerators*:

- Help-Portal: *SAP Solution Manager EHP1*
- SAP online knowledge products: *SAP Solution Manager*

2.11 System Monitoring Work Center in the SAP Solution Manager

The *System Monitoring* work center in *SAP Solution Manager* is particularly important as a central monitoring tool. It contains the following functions:

- Overview: System, instance, and service availability
- Alert inbox: For CCMS alerts
- Proactive monitoring: Overview and detailed monitoring tools for ad-hoc monitoring. A distinction is made here between *AS ABAP*, *AS Java*, and component-specific tools.
- Connectivity monitoring: For technical monitoring of interfaces
- Job monitoring: Status of background jobs
- Reports: Summary of *EarlyWatch Alert*, *Service Level Reporting*, and BI-based reports. These reports are divided into system-specific and cross-solution reports.
- Setup: Direct access to self-diagnosis functions and *Solution Manager Diagnostics* is also provided.

For a detailed overview about the functionality, please see the following *Accelerators*:

- Help Portal: Work center *System Monitoring*
- SAP online knowledge products: *SAP Solution Manager* (Navigate to: *SAP Solution Manager 7.0 EHP1 / overview and setup of SAP Solution Manager/Work Centers for SAP Solution Manager*)

Implementation Methodology

System Monitoring

Setup Operations



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