Conception and Installation of System Monitoring Using the SAP® Solution Manager
# Contents

Introduction ............................................................................................... 11  
Contents of this Book ...................................................................... 13  
Target Audience ........................................................................... 13  
Prerequisites .................................................................................... 13  
Contents of the Individual Chapters ............................................. 13  

## 1 The Problem and a Sample Scenario ........................................ 15  

1.1 Centralized and Decentralized System Monitoring ............... 15  
1.2 SAP Solution Manager ................................................................. 17  
1.2.1 Implementation ................................................................. 17  
1.2.2 Operations ....................................................................... 19  
1.2.3 Optimization .................................................................... 21  
1.2.4 The SAP Solution Manager System Availability During Operation ......................................................... 22  
1.3 The “Monitoring” Project ............................................................ 23  
1.3.1 Project Management ........................................................ 23  
1.3.2 Monitoring Concept ......................................................... 24  
1.3.3 Project Team .................................................................... 25  
1.4 Toys Inc.: Initial Situation ........................................................... 26  
1.4.1 Enterprise ......................................................................... 26  
1.4.2 System Landscape ............................................................ 27  
1.4.3 IT Department .................................................................. 28  
1.4.4 System Monitoring ........................................................... 30  
1.4.5 Problems with the Existing System Monitoring Process .... 31  
1.4.6 Overcoming the System Monitoring Problems ............... 32  

## 2 SAP Solution Manager .............................................................. 33  

2.1 Work Centers .............................................................................. 33  
2.2 Scenarios of SAP Solution Manager ........................................... 34  
2.2.1 Implementation and the Upgrade Platform ....................... 35  
2.2.2 Solution Monitoring .......................................................... 37  
2.2.3 Service Desk — Incident Management ............................ 44  
2.2.4 Root Cause Analysis ............................................................ 47
2.2.5 Change Request Management ........................................ 49
2.2.6 SAP Service Delivery ...................................................... 49
2.3 ITIL ..................................................................................... 51
2.4 SAP Solution Manager as a Monitoring Tool ..................... 52

3 Designing the Monitoring Concepts ........................................ 55

3.1 The Monitoring Concept .................................................... 55
3.1.1 Requirements of System Monitoring ............................... 56
3.1.2 Documenting the System Landscape .............................. 56
3.1.3 Defining Roles and Responsibilities .............................. 61
3.1.4 Defining Monitoring Processes ..................................... 62
3.1.5 Monitoring Objects ....................................................... 63
3.1.6 Threshold-Value Definitions ......................................... 64
3.1.7 Monitoring Frequency .................................................. 65
3.1.8 Alert Notification .......................................................... 66
3.2 Operating System (OS) ....................................................... 66
3.2.1 File System .................................................................. 66
3.2.2 CPU ........................................................................... 67
3.2.3 Main Memory and Paging Behavior .............................. 68
3.2.4 OS Collector ................................................................. 69
3.3 System and Instance Availability ....................................... 69
3.4 Background Processing ..................................................... 71
3.5 System Performance ......................................................... 73
3.6 Spool Service ................................................................. 76
3.7 Traces .............................................................................. 77
3.8 Memory Management ....................................................... 78
3.8.1 Buffers ....................................................................... 78
3.8.2 AS ABAP: Paging Memory, Roll Memory, Extended Memory, Heap Memory .......................... 79
3.9 System Log ..................................................................... 80
3.10 Runtime Error ................................................................. 81
3.11 User Monitoring — System Security ................................. 83
3.12 Additional SAP Components .......................................... 85
3.12.1 liveCache Operating Status ....................................... 85
3.12.2 liveCache Memory Management and Data Backup ...... 86
3.13 Database ........................................................................... 87
3.13.1 Database and Table Growth ....................................... 88
Contents

3.13.2 Database Buffers ............................................................... 89
3.13.3 Lock Entries (AC/D) .......................................................... 89
3.13.4 I/O Activities — Hard Disk Accesses ................................. 90
3.13.5 Database Structure Check ................................................. 90
3.13.6 Data Backup ....................................................................... 91

3.14 Communication Interfaces ..................................................... 92
3.14.1 tRFC ............................................................................. 92
3.14.2 qRFC ........................................................................... 93
3.14.3 QIN and QOUT Scheduler ................................................ 94

3.15 BW Process Chain Monitoring .............................................. 95

3.16 Self-Monitoring of Monitoring Tools ........................................ 97
3.16.1 Availability of SAP Solution Manager Systems ............... 97
3.16.2 Monitoring the Computing Center Management System (CCMS) Monitoring Architecture 98
3.16.3 CCMS Agents .................................................................. 99
3.16.4 SAPCCMSR ................................................................... 100
3.16.5 SAPCCM4X .................................................................... 100
3.16.6 SMD Agent ..................................................................... 101
3.16.7 Introscope Agent ............................................................... 101

3.17 Monitoring System Components Without an SAP Instance .... 102
3.17.1 Log File .......................................................................... 102
3.17.2 OS ................................................................................. 103

3.18 Documenting Changes in System Monitoring ......................... 103
3.18.1 Responsibility for the Documentation ............................. 104
3.18.2 Change Log .................................................................... 104
3.18.3 Process Description .......................................................... 104

4 System Monitoring Using SAP Solution Manager 7.0 ............. 105

4.1 Technological Delimitation ...................................................... 105
4.1.1 CCMS ........................................................................... 105
4.1.2 End-to-End Workload Analysis ....................................... 105

4.2 Prerequisites ........................................................................... 106
4.2.1 Installing SAP Solution Manager .................................... 106
4.2.2 Support Packages ............................................................ 107
4.2.3 Components of SAP Solution Manager 7.0 .................. 108
4.2.4 Components in Satellite Systems — ST-PI and ST-A/PI ... 111
4.2.5 SAP Solution Manager System Users .............................. 111
Contents

4.2.6 Satellite System Users ....................................................... 113
4.2.7 OS Collector — SAPOSCOL .............................................. 113

4.3 SAP Solution Manager Configuration ................................. 113
4.3.1 Maintenance of the System Data ...................................... 113
4.3.2 Setting RFC Connections in Satellite Systems ............... 122
4.3.3 SAP Solution Data Manager ............................................. 126

4.4 Solution Landscapes in SAP Solution Manager ................. 127
4.4.1 Overview of Active Solutions .......................................... 128
4.4.2 Creating the “System Monitoring” Solution .................... 129
4.4.3 Deactivating an Active Solution ........................................ 130

4.5 Configuration of the “System Monitoring” Solution ............. 130
4.5.1 The Basic Structure of the Main Screen of a Solution Landscape ......................................................... 130
4.5.2 Integrating the Systems in System Monitoring ................. 132
4.5.3 Assigning RFC Connections for System Monitoring .......... 134
4.5.4 CCMS Agents in Central Monitoring ................................. 136
4.5.5 EWA ................................................................................. 137

4.6 Setting up Active System Monitoring ................................. 138
4.6.1 Basic Principles on the Structure of the “Setup System Monitoring” Service .......................... 138
4.6.2 Activating System Monitoring for SAP Systems with an ABAP Kernel ............................................ 140
4.6.3 RFC Connections for System Monitoring ......................... 141
4.6.4 Setting Up System Monitoring for SAP Components ...... 142
4.6.5 Copying System Monitoring Configuration Settings .......... 144
4.6.6 Setting Up System Monitoring for Additional SAP Components — liveCache ................................. 144
4.6.7 Setting Up System Monitoring for Java 2 Enterprise Edition (J2EE) SAP Components ............... 145
4.6.8 Setting up System Monitoring for Additional Hardware Components ................................................... 146

4.7 The SAP Solution Manager Alert Monitor ......................... 147
4.7.1 Basic Principles of the Alert Monitor ................................. 147
4.7.2 The Alert Monitor after the Setup Process for System Monitoring ......................................................... 148

4.8 Performance Monitoring in AS Java Environments .............. 150

4.9 Setting Up Manual System Monitoring ............................. 151

4.10 Autoreaction Methods ....................................................... 157
4.10.1 SAPconnect ................................................................. 158
3.2.4 OS Collector

The OS collector runs on every SAP application server and database system. The SAPOS COL program collects OS system data that is then transmitted to the monitoring architecture. It is advisable to monitor the status of the OS collector because otherwise no operating system data is collected (see Table 3.16).

<table>
<thead>
<tr>
<th>Category</th>
<th>Operating system (Linux/Unix)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Swap space</td>
</tr>
<tr>
<td>Monitoring attribute of the object</td>
<td>Utilization of the allocated storage space on the hard disk</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 3.15  Monitoring the Use of Swap Space

3.3 System and Instance Availability

Basically, every enterprise wants to keep the costs for its data centers as low as possible. But the expectations of users and the demands on the systems are high. The systems have to be available around the clock, which is not always possible due to limited budgets. Especially if a 24/7 availability has to be ensured, it is reasonable to consider the implementation of sophisticated high-availability solutions, such as server mirroring or a clustering solution. The related costs, though, are very high.
Regardless of the question whether a system has to be available for 12 or 24 hours, you should include the monitoring of the systems’ availability and their application servers into the centralized monitoring process. By doing this you make sure that the systems are available in the required timeframe and work without any problems.

Let’s recall the problems that occurred previously in the system monitoring process at Toys Inc. and were recorded by their project group (see Chapter 1, Section 1.4, Toys Inc.: Initial Situation). A very important aspect was the response time regarding the problem identification in the case of a system availability failure in a 24/7 system operation. A system failure should not first be noted by users or other persons who don’t deal with the system operation. The system administrator should be the first to notice the problem.

In the SAP environment you can use the availability agent CCMSPING to check the availability of the message server. If the system is active, the message server will respond to the request of the availability agent. At the same time, this means that at least one application server has been registered as active in the message server (see Table 3.17).

<table>
<thead>
<tr>
<th>Category</th>
<th>System and instance availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object I</td>
<td>System availability</td>
</tr>
<tr>
<td>Monitoring object II</td>
<td>Instance availability</td>
</tr>
<tr>
<td>Monitoring attribute of the object I</td>
<td>Availability per system</td>
</tr>
<tr>
<td>Monitoring attribute of the object II</td>
<td>Status of instance availability</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Auto-reaction method</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 3.17  Monitoring the System and Instance Availability

**Availability of Online Applications**

Toys Inc. uses SAP NetWeaver Portal to operate a Web shop and a portal for suppliers. Therefore, it is important to Toys Inc. to monitor these two accesses with regard to their availability. If one of the applications would fail for system reasons, this would cause enormous financial loss of sales. To monitor the Internet presence, Toys Inc. uses the *Generic Request and Message Generator* (GRMG) agent for
querying the URLs to receive performance information about the call (see Table 3.18).

<table>
<thead>
<tr>
<th>Category</th>
<th>System and instance availability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object I</td>
<td>Process availability</td>
</tr>
<tr>
<td>Monitoring attribute of the object I</td>
<td>Availability per process</td>
</tr>
<tr>
<td>Monitoring attribute of the object II</td>
<td>Status of the Web process availability</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>Yes</td>
</tr>
</tbody>
</table>

Table 3.18  Monitoring the Availability of Web Presences

### 3.4 Background Processing

Although there is increasing tendency toward dialog-oriented processes, a large number of them still run in the background. The IT systems are available 24/7 for dialog and online processes, but background processes must be scheduled for times with low loads. This requires not only precise planning but also monitoring that is continuously active in the dialog applications and background application areas.

There are two different areas when monitoring background processes:

The first one is a rather global view of background processing. It mainly focuses on:

- the average utilization of the background work processes of a server
- the number of errors in background work processes
- the program errors during the execution of background jobs
- the number of jobs canceled on an application server

The second area focuses on monitoring specific jobs. You check if the scheduled jobs were run correctly, the runtime behavior, you check if jobs have to be rescheduled or activated manually, if they have to be run again, and which jobs were canceled. For jobs that can have a substantial effect on a system’s performance it would be good to install the automatic notification function. Table 3.19 illustrates
the system-wide monitoring of the background process, Table 3.20 lists the background processing per application server as an example, and Table 3.21 includes the attributes for dedicated jobs.

<table>
<thead>
<tr>
<th>Category</th>
<th>Background processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Background processing service — system-wide</td>
</tr>
<tr>
<td>Monitoring attribute of the object</td>
<td>Number of jobs ready to run and authorized to start</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>No</td>
</tr>
</tbody>
</table>

**Table 3.19  Monitoring the System-Wide Background Processing**

<table>
<thead>
<tr>
<th>Category</th>
<th>Background processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Background processing service — per application server</td>
</tr>
<tr>
<td>Monitoring attribute I of the object</td>
<td>Average utilization of background processes</td>
</tr>
<tr>
<td>Monitoring attribute II of the object</td>
<td>Number of errors in background work processes</td>
</tr>
<tr>
<td>Monitoring attribute III of the object</td>
<td>Program errors during the execution of background jobs</td>
</tr>
<tr>
<td>Monitoring attribute IV of the object</td>
<td>Number of jobs canceled on an application server</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>No</td>
</tr>
</tbody>
</table>

**Table 3.20  Monitoring the Background Processing per Application Server**

In addition to the general criteria for monitoring background processes described earlier, the use and integration of a job scheduler into your system monitoring model should also be considered. A job scheduler, also called a background-processing control system, automatically starts and monitors background processes.
Table 3.21  Monitoring the Background Processing per Job

When you use a job scheduler you not only define the specific jobs themselves but also the processes that enable you to restart jobs after a failure or to respond appropriately if individual batch runs build on each other and consequently reschedule follow-up jobs. Even in the case of a complete system failure, job schedulers are able to reorganize the job chains due to processes you had previously defined.

However, despite all of this automation, the system administrators still need to monitor the background processing. For example, they have to manually restart background jobs that repeatedly started automatically and were not fully completed.

3.5  System Performance

If you continuously monitor the performance of your system, you can identify and avoid problems before they occur. There are many reasons for problems with system performance. Perhaps your hardware is not configured to handle the existing loads or the configuration of your entire system is not optimal. Possibly, only some specific programs that you use are very time intensive and use a lot of system resources so that a few changed settings could help improve the overall performance. Or a database performance problem could be the cause. To find the right solutions for SAP systems you first have to do a workload analysis. To support the workload analysis, the SAP landscapes provide the End-to-End Root Cause Analysis tools. They use existing information from the workload monitor (Transaction ST03N) of the SAP AS ABAP systems and Wily Introscope performance informa-
Designing the Monitoring Concepts

tion for SAP systems with a Java instance. This information is provided to the analysis tools centrally. It provides you with information about response time behaviors, throughput, and loads in an SAP system. You should use this tool as the first step of an extensive and detailed analysis.

Possible performance problems may occur in dialog operation, background processing (see Section 3.4), spool service, and update service. Tables 3.22, 3.23, 3.24, 3.25, and 3.26 include select information from possible monitoring objects that are monitored for each application server. These monitoring objects refer to the general system performance. Using this information you make initial conclusions and perform additional detailed analyses in the case of an alarm.

If you need further detailed information about SAP performance optimization, you should refer to the latest edition of SAP Performance Optimization by Thomas Schneider, also published by SAP PRESS. No matter which SAP solution you have to manage, Thomas Schneider’s book helps you to systematically identify and analyze performance problems for any SAP solution and to come up with a solution approach.

For many users an important value is still the average response time of a transactional step in a dialog. Therefore, it can be found both in the service contracts with hosting enterprises and internally between the IT department and the application owners. Based on this criterion, you frequently evaluate the system performance of a system over a given period of time. For example, in an ERP system the performance is good if the average dialog response time is approximately one second. However, due to different requirements of the systems set by different business processes and also due to the individual configuration of a system landscape, it is impossible to use this rule for all enterprise systems or every SAP solution (SAP SCM, SAP Customer Relationship Management (CRM), SAP NetWeaver BW, SAP EP, and so on). On the contrary, every system landscape must be regarded individually. Depending on the SAP solution you have implemented, the average dialog response time can vary considerably. As a kind of reference value you can use the ratio between the average response time and the average database time in dialog operation mode. If the value for the database time is more than 40% higher than that for the average response time, this could be an indication of a possible database or network problem, or a CPU bottleneck.

Toys Inc. decided to add the most important transactions to their monitoring. This way, it is possible to report the performance information periodically to better identify and assess the developments within the system.
<table>
<thead>
<tr>
<th>Category</th>
<th>System performance (ABAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Dialog service</td>
</tr>
<tr>
<td>Monitoring attribute II of the object</td>
<td>Average use of dialog work processes of an application server</td>
</tr>
<tr>
<td>Monitoring attribute II of the object</td>
<td>Average database time of dialog service</td>
</tr>
<tr>
<td>Monitoring attribute IV of the object</td>
<td>Number of dialog work processes in PRIV mode</td>
</tr>
<tr>
<td>Monitoring attribute V of the object</td>
<td>Wait time in the dispatcher queue</td>
</tr>
<tr>
<td>Monitoring attribute VI of the object</td>
<td>Time for long-lasting dialog work processes</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>No</td>
</tr>
</tbody>
</table>

**Table 3.22 Monitoring the Dialog Service**

<table>
<thead>
<tr>
<th>Category</th>
<th>System performance (ABAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Updating — system-wide</td>
</tr>
<tr>
<td>Monitoring attribute of the object</td>
<td>Number of wrong update requests</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>Yes</td>
</tr>
</tbody>
</table>

**Table 3.23 Monitoring Updating — System-Wide**

<table>
<thead>
<tr>
<th>Category</th>
<th>System performance (ABAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Updating — per application server</td>
</tr>
<tr>
<td>Monitoring attribute I of the object</td>
<td>Wait time in the dispatcher queue</td>
</tr>
<tr>
<td>Monitoring attribute II of the object</td>
<td>Utilization of update work processes</td>
</tr>
<tr>
<td>Monitoring attribute III of the object</td>
<td>Update error in work process</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>No</td>
</tr>
</tbody>
</table>

**Table 3.24 Monitoring Updating per Application Server**
3.6 Spool Service

The spool service controls all output processes of an AS ABAP system, including print control. At Toys Inc., the creation of requests for payment was incorporated along with all of the critical processes of the enterprise. Due to the very large customer base of Toys Inc., the enterprise requires an output process with low wait time. For Toys Inc., the printout is a business-critical process that must be monitored with appropriate care. Table 3.27 shows the typical monitoring objects that were selected for monitoring.

<table>
<thead>
<tr>
<th>Category</th>
<th>System performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Spool service</td>
</tr>
<tr>
<td>Monitoring attribute I of the object</td>
<td>Wait time of spool work processes</td>
</tr>
</tbody>
</table>

Table 3.27  Monitoring the Spool Service
Traces

Traces are used to monitor the system and to isolate problems that occur in an SAP system. Traces can be activated for both ABAP and Java. Different tools are required for each. When you switch on a trace in an AS ABAP system, various operations of an application are logged depending on the corresponding level. There are two types of traces — developer traces and performance traces — that are activated directly in the system. For AS Java systems, traces are created using the End-to-End Root Cause Analysis tools and displayed in Solution Manager Diagnostics.

However, you should only use the trace functions in exceptional circumstances because they could affect system performance due to the increased write activities. Therefore, you should check on a daily basis if the traces are switched on and if so, whether they have an effect on the system operation and could be deactivated.

Table 3.28 shows the status of the developer traces and performance traces.

<table>
<thead>
<tr>
<th>Category</th>
<th>Basis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Trace</td>
</tr>
<tr>
<td>Monitoring attribute I of the object</td>
<td>Status of developer trace</td>
</tr>
<tr>
<td>Monitoring attribute II of the object</td>
<td>Status of system trace</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 3.28  Monitoring the Trace Functionality
3.8 Memory Management

Using Memory Management you can assign different SAP memory areas within an SAP instance to the applications. The appropriate parameterization enables you to define which memory area is used. During operation hours of an SAP system you should check to see if the necessary resources are available to Memory Management and if the system is slowed down by paging processes or other bottlenecks due to a lack of resources.

The configuration of SAP memory areas plays an important role. If the SAP memory areas are not optimally aligned with the system load requirements, performance will go down and the end user will no longer be able to work efficiently. It should therefore be your objective to optimize the memory configuration and to avoid program failures caused by memory bottlenecks. Consequently, you must include the different memory areas in your system monitoring model.

3.8.1 Buffers

Applications use buffers in the main memory to temporarily store data. It is necessary to have information about the quality and efficiency of critical buffers to maintain and improve a system’s performance.

<table>
<thead>
<tr>
<th>Category</th>
<th>Memory management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>SAP table buffer</td>
</tr>
<tr>
<td>Monitoring attribute I of the object</td>
<td>Hit ratio</td>
</tr>
<tr>
<td>Monitoring attribute II of the object</td>
<td>Swap rate (swaps)</td>
</tr>
<tr>
<td>Monitoring attribute III of the object</td>
<td>Free buffer space</td>
</tr>
<tr>
<td>Monitoring attribute IV of the object</td>
<td>Space usage for directories</td>
</tr>
<tr>
<td>Responsibility</td>
<td>Centralized system monitoring</td>
</tr>
<tr>
<td>Type of monitoring</td>
<td>Automated</td>
</tr>
<tr>
<td>Autoreaction method</td>
<td>No</td>
</tr>
</tbody>
</table>

Table 3.29 Monitoring the SAP Buffers

For example, the performance of a system can deteriorate if a table buffer is too small, which can lead to displacements (paging) and unnecessary reloads of the
database. A displacement is when an object that is to be loaded into the buffer cannot be entirely loaded because the buffer is too small. In such a case other objects have to be displaced or pushed out of the buffer. As a matter of fact, displacements should never occur in a production system.

An attribute for monitoring SAP buffers is the hit ratio. In a production system you should see a hit ratio of 98% or higher. There are exceptions, however, the single-record and the import/export buffers, which can both be below 98%.

### 3.8.2 AS ABAP: Paging Memory, Roll Memory, Extended Memory, Heap Memory

Like the SAP buffers, the paging memory, roll memory, extended memory, and the heap memory of AS ABAP are separate SAP memory areas. These memory areas are configured for each SAP instance, and system performance plays an important role.

It is highly recommended that you check all of the following attributes for the SAP memory areas on a weekly basis except for the current number of work processes in private mode and the number of restarts of the dialog work processes since startup due to `abap/heaplimit` being exceeded. If you detect a regular occurrence of this state you must check the memory configuration or find out if application errors are the cause (see Table 3.30).

<table>
<thead>
<tr>
<th>Category</th>
<th>Memory management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monitoring object</td>
<td>Memory management</td>
</tr>
<tr>
<td>Monitoring attribute I of the object</td>
<td>SAP AS ABAP paging: Maximum utilization of paging area since system startup</td>
</tr>
<tr>
<td>Monitoring attribute II of the object</td>
<td>SAP AS ABAP roll: Maximum utilization of roll area since system startup</td>
</tr>
<tr>
<td>Monitoring attribute III of the object</td>
<td>High watermark of extended memory since startup</td>
</tr>
<tr>
<td>Monitoring attribute IV of the object</td>
<td>Amount of extended memory in user contexts that are currently active in WPs</td>
</tr>
</tbody>
</table>

**Table 3.30 Monitoring Additional SAP Memory Areas**
5. Select a task. You are now in the central system administration service. Here you have the option to go directly into the monitored system to execute the system task. Upon completing the task, confirm this and, if necessary, write a comment into the log book.

6. Save your entries. The symbol is replaced by a green rating. The task disappears from the task list of the graphical overview until the next necessary monitoring activity.

### 4.10 Autoreaction Methods

Monitoring a system landscape means that the system administrator needs to receive prompt notification of any problems that have occurred. Autoreaction methods such as service tickets, email notifications, short message service (SMS), fax, or pager are very helpful.

The method by which the system administrator receives information on a problem that has occurred depends on what influence the monitored object has on the running system operation. If, for example, a system breaks down, it is recommended to notify the system administrator both through the monitoring team and an autoreaction method.

In the SAP Solution Manager, system autoreaction methods are defined via the CCMS monitoring architecture. Since SAP Basis Release 4.0, the CCMS monitoring architecture gives you the option to define autoreaction methods, which are automatically executed in the case of an alert.

Since SAP Basis Release 7.0, the predefined autoreaction methods, Serv_Desks_Mess_on_Alert and CCMS_OnAlert_Email_V2, are supplied. These methods react to alerts themselves in the background and send the ticket to the Service Desk or a notification via email, fax, SMS, or pager to a recipient or recipient list.
Since SAP Basis Release 6.10, central autoreaction methods can be defined in central monitoring. The autoreaction methods are then configured in the system in which the central monitoring is executed. Section 4.11, Central Autoreaction Methods, provides an example for the implementation of a central email autoreaction method.

This section describes the technical implementation for the email autoreaction methods. That means the prerequisites and functionalities described here are only considered in connection with setting up email traffic for Toys Inc. in an SAP Solution Manager 7.0 system. If you need information on the technical setup for sending information via SMS, fax, or pager, you can get this information from the SAP library (http://help.sap.com).

At Toys Inc., the central email autoreaction method is implemented for the OTO, TEC, PSI, PBI and WAMA production system in the SAP Solution Manager system.

The process of automatically creating service tickets in the Service Desk is identical to the email method. If an incident (error) occurs, the system generates on the basis of the error text a ticket, which is sent to the component in the Service Desk that is defined for the method. The Service Desk enables you to create an alert system as defined in IT Infrastructure Library (ITIL). If the ticket is not processed within a defined period of time, it can automatically trigger an escalation.

SAP Press Essentials 46, SAP Solution Manager Service Desk – Functionality and Implementation, by Matthias Friedrich and Torsten Sternberg (Galileo Press 2008) describes the implementation and process in the Service Desk in more detail.

### 4.10.1 SAPconnect

SAPconnect provides a standardized, external communication interface for that supports communication by telecommunication services, such as fax, pager, Internet, and X400, and communication with printers and other SAP systems. It facilitates the connection of external communication components to the SAP system.

There are two ways to link SAPconnect to an SAP system:

- **SAPconnect with RFC**
  SAP’s technology from Releases 3.1 to 6.x allows for the connection of various gateways via RFC. These gateways transfer emails between the SAP system and
a specified email server. That means you execute the actual email transfer via SMTP (Internet email protocol) to or from remote participants. For example, email gateways can be the SAP Internet email gateway, SAP Exchange Connector, and also non-SAP products from partner enterprises.

- **SAPconnect with SMTP**

  Using SAP Technology Release 6.10, the SAP system kernel directly supports SMTP. This means that no further components are necessary to send or receive emails from the SAP system to each SMTP-compatible email server. This type of connection is described in the following section.

### 4.10.2 Setting the Email Autoreaction Method via SMTP in SAP Solution Manager 7.0

The following steps to set up the email autoreaction method through SMTP are described on the basis of SAP NetWeaver 2004s. Furthermore, the setup refers to outgoing emails only. Please note that in other SAP releases deviations in the configuration can occur.

To use the SMTP functionality, the profile must be compatible with SAP NetWeaver 2004s. Set the following profile parameters for SMTP. The `<*>` placeholder stands for a digit so that the parameters can be numbered consecutively, beginning with 0.

Maintain the parameter

```
icm/server_port_<*> = PROT=SMTP,PORT=<port>
```

in the SAP Solution Manager system. This opens a TCP/IP port to receive emails through the SMTP plug-in. If you don’t want to receive any emails, set the port to 0.

A further parameter is

```
is/SMTP/virt_host_<*> = <host>:<port>,<port>,...
```

Here, a “virtual host” is defined for the receipt of emails. This parameter is only necessary if several clients are to receive incoming emails. If emails are only received and processed in clients, this parameter is not necessary. This is only mentioned here for the sake of completeness — it is not relevant for the configuration in our Toys Inc. example.
The SAPconnect settings must be set up in the client that sends or receives emails. Here, you define, for example, which email server and port is used to send emails from the system:

1. Call Transaction SCOT. Follow the View • System Status menu path. The SMTP node can be found under the INT (Internet) element.
   Each client contains only one SMTP node. It is automatically created by the system and cannot be deleted.
2. Double-clicking on the SMTP node takes you to the configuration screen (see Figure 4.33).

![Figure 4.33 SAPconnect — Configuration of the SMTP Node](image)

3. Configure the SMTP node. In the Hours/minutes field, define which time interval the connection must be re-established in for the SMTP nodes if a temporary connection problem occurs.
4. Select the Node in use field.
5. Enter the email server in the Mail Host field and the corresponding port number in the Mail Port field.
6. Click the Internet field and click on the corresponding Set button. A new dialog opens.

7. Enter the address area of the recipient addresses that are to be reached via this node. For example, "*" (asterisk) if all emails are to be sent through the SMTP node.

8. In Output Formats for SAP Documents, using the settings available in Figure 4.34 is recommended.

<table>
<thead>
<tr>
<th>Output Formats for SAP Documents</th>
</tr>
</thead>
<tbody>
<tr>
<td>SAPscript/Smart Forms</td>
</tr>
<tr>
<td>ABAP List</td>
</tr>
<tr>
<td>Business ObjectLink</td>
</tr>
<tr>
<td>Raw Text</td>
</tr>
</tbody>
</table>

![Output Formats for SAP Documents](image)

**Figure 4.34** Output Formats for SAP Documents

Emails sent from an SAP system are placed in a queue. The SAPconnect send job periodically checks to see if new emails are in the queue, and, if necessary, sends them. This job is scheduled in the SAP Solution Manager system by SAPconnect administration:

1. Call Transaction SCOT. Follow the VIEW • JOBS menu path. Here, you can check if a send job is scheduled in SAPconnect. If you are not sure, you can also check Transaction SM37 (Simple Job Selection) to see if a job has already been scheduled in the RSCONN01 program.

2. Follow the menu path JOB • CREATE. A dialog opens.

3. Enter a name for the job here.

4. Confirm the entry with the [Enter] key or with the green check. A new dialog opens.

5. Select the SAP&CONNECTINT variant (see Figure 4.35).


7. In this dialog, click the Periodic Scheduling button.

8. Set the time interval in which the job is started, for example, every five minutes, and confirm your entry with the Create button or the [Enter] key.

9. Follow the GoTo • DISPLAY SCHEDULING menu path or click the Display Scheduling button to see if the job has been successfully created.
You can define central autoreaction methods within the scope of central monitoring of SAP components in the CCMS monitoring architecture. The autoreaction methods are not configured and started in the system the alert appears in, but in the central monitoring system, which is SAP Solution Manager in our example. This means that work for setting up and changing autoreaction methods is only required at one point.

For central monitoring, installing the SAPCCM4X agent is required for each system that is monitored and connected to the central system.

SAP systems with Basis Release 3.1 (Release 3.1 requires the SAPCM3X agent) and systems that are centrally connected to SAPCCMSR agents are automatically part of the central monitoring system. Therefore, the autoreaction methods are always started centrally.
4.11.1 Setting Up the Central Autoreaction Method (Using the Email Method as an Example)

The configuration of the central autoreaction method is carried out in the SAP Solution Manager system.

1. Call Transaction RZ21. Follow the TECHNICAL INFRASTRUCTURE • CONFIGURE CENTRAL SYSTEM • ASSIGN CENTRAL AUTOREACTIONS menu path. This takes you to the Manage Central Autoreactions screen (see Figure 4.36).

![Figure 4.36 Central Autoreactions — Management](image)

The screen is split into four areas. In the upper left-hand System ID area you can see the systems that are connected to the central monitoring system. In the central area there is a selection of MTE classes. On the right-hand side you can see the central autoreaction(s), which you define by assigning systems to the relevant MTE class. In the bottom area you get an overview of the assignments already stored.

2. Define a central autoreaction method. You can do this either through the DEFINE CENTRAL AUTOREACTION menu path or through the Defined Central Autoreactions pane and clicking the Create button. A new dialog opens.

3. Enter your preferred method name into the field next to the Create button. Then, click the Create button.

Alternatively, you can also execute an existing autoreaction method centrally. To do this, enter the existing method into the entry field next to the Create With Template button and then click this button. The new Monitoring: Methods dialog opens.
4. Enter the corresponding method settings. Note the following settings in the respective tabs:

- **Execution**
  Enter the report or the function module to be executed. If you like you can use the `SAL0_EMAIL_IN_CASE_OF_ALERT_V2` function module provided by SAP.

- **Control**
  Select Only in Central System, trigger by CCMS agents.

- **Parameters**
  Transfer the parameters according to their values. Figure 4.37 provides an overview of all of the possible parameters and the corresponding value descriptions.

- **Release**
  Mark the Autoreaction Method field.

5. Save your entries.

![Monitoring: Methods](image)

**Figure 4.37** Configuring the Parameters for the Email CEN Autoreaction Method
4.11.2 **Assigning the Central Autoreaction Method**

Proceed as follows to assign the central autoreaction method to the monitored systems:

1. Call Transaction RZ21. Follow the **Technical Infrastructure • Configure Central System • Assign Central Autoreactions** menu path. This brings you to the Manage Central Autoreactions dialog screen.

2. Select the systems in the System ID area that you want to include in the central autoreaction methods and the MTE class you want to include from the MTE Class area. You can select several objects at once by keeping the `Ctrl` key pressed while selecting the objects.

3. Select the autoreaction method in the Defined Central Autoreactions area that you want to assign to the selected classes and the selected systems.

4. Click on the Assign Central Autoreactions button. In the bottom area you will see the corresponding assignment. Carry out the steps until you have assigned all of the autoreaction methods to the corresponding systems and the desired MTE class.

4.11.3 **Activating Central System Dispatching**

Once you have defined and assigned the autoreaction methods, you can activate the central system dispatching.

In Transaction RZ21, Follow the **Technical Infrastructure • Configure Central System • Activate Central System Dispatching** menu path.

Ensure that you start the central autoreaction methods under the user name for the client that was activated by the central method dispatcher. If you use the automatic alert notification, the client is crucial. After activation, ensure you are in the client emails are sent from.

4.11.4 **Parameter Maintenance of the Email Autoreaction Method**

Autoreaction methods, such as emails, can be assigned to an MTE class. If an alarm is triggered for the MTE according to its values, the SAP system automatically sends an email to the specified recipient. Three important pieces of information are necessary for this:
Sender
The sender is an SAP user name in whose name the email is sent. This user must be available in Client 000. An email address must be assigned to this user.

Recipient
The recipient can be an Internet address or a mailing list, for example.

ID Sender type (Address type)
The sender or address type is dependent on the sender. The sender determines the method of communication. If you send an email to an Internet address, the corresponding address type is “U,” for example. Possible recipient types with the related address type are listed in Table 4.8.

<table>
<thead>
<tr>
<th>Recipient Type</th>
<th>Sample Entry</th>
<th>Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name</td>
<td>Anna Meyer</td>
<td></td>
</tr>
<tr>
<td>SAP user ID</td>
<td>Meyera</td>
<td>B</td>
</tr>
<tr>
<td>External address</td>
<td>Frank Miller</td>
<td>A</td>
</tr>
<tr>
<td>Personal distribution list</td>
<td>Favorite colleagues</td>
<td>P</td>
</tr>
<tr>
<td>Group distribution list</td>
<td>Archiving project</td>
<td>C</td>
</tr>
<tr>
<td>Fax number</td>
<td>DE 08912345678</td>
<td>F</td>
</tr>
<tr>
<td>Internet address</td>
<td><a href="mailto:anna.meyer@our_enterprise.com">anna.meyer@our_enterprise.com</a></td>
<td>U</td>
</tr>
<tr>
<td>Organizational object</td>
<td>Purchasing (organizational unit)</td>
<td>H</td>
</tr>
<tr>
<td>Business object</td>
<td>Office folder</td>
<td>J</td>
</tr>
<tr>
<td>Remote SAP name</td>
<td>C11:000:meyer</td>
<td>R</td>
</tr>
<tr>
<td>X.400 address</td>
<td>g=anna;s=meyer; o=c11;ou1=m000; p=enterprise; a=dbp; c=de</td>
<td>X</td>
</tr>
<tr>
<td>LDAP address</td>
<td>C=de/o=c11/ou=m000/cn=…</td>
<td>D</td>
</tr>
</tbody>
</table>

Table 4.8  Recipient Types with Address Type

Subject
You can freely define the subject using 140 characters. You can use placeholders to have the system create individual subject lines for the messages. Table 4.9 illustrates which placeholders you can use in the subject line and their meaning.
Central Autoreaction Methods

4.11

Table 4.9 Placeholders for the Subject Design of the Email Autoreaction Method

<table>
<thead>
<tr>
<th>Placeholder</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>$SID</td>
<td>System in which the alert occurred</td>
</tr>
<tr>
<td>$NODENAME</td>
<td>Complete name of the monitoring node in which the alert occurred (context, object, attribute)</td>
</tr>
<tr>
<td>$SEGMENT</td>
<td>Segment name of the monitoring node (= $INSTANCE)</td>
</tr>
<tr>
<td>$INSTANCE</td>
<td>Segment name of the monitoring node (= $SEGMENT)</td>
</tr>
<tr>
<td>$CONTEXT</td>
<td>Context name of the monitoring node</td>
</tr>
<tr>
<td>$OBJECT</td>
<td>Object name of the monitoring node</td>
</tr>
<tr>
<td>$ATTRIBUTE</td>
<td>Attribute name of the monitoring node</td>
</tr>
</tbody>
</table>

4.11.5 Monitoring the External Transmission Processes

Transmission processes that come from the central monitoring system can be checked in the Administration of external transmissions monitor. According to a defined time frame, which you specify, you can display all transmission processes as follows:

1. Call Transaction SOST. This takes you to the Transmission Requests monitor (see Figure 4.38).

![Figure 4.38 Overview of External Transmissions](image)

2. Define the time range in the Send date and Sent time fields for when you want to see the transmission processes.
Figure 4.38  Overview of External Transmissions
Index

A

ABAP dump, 81, 82
ABAP dump statistics, 43
ABAP runtime error, 82
ACID rules, 92
Active solutions
   Deactivate, 130
   Overview, 128
ALE log, 38
Alert monitor, 53, 147
Alert notification, 66
Application components
   Overview, 57
Application Link Enabling (ALE), 40
Application management, 28
Application service tools, 109
Authorization problem, 82
Automated monitoring, 53
Automatic Session Manager (ASM), 126
Autoreaction methods, 157
   Central, 162
   Parameter maintenance, 165
   Set up, 159

B

back connection, 127
Background jobs, 31
Background processing, 71
BAPI, 92
Basis team, 28
Business Explorer, 175
BW process chains, 95
Buffer, 78
Business Process Monitoring, 20, 38

C

CCMS agents, 99, 136
CCMS_OnAlert_Email_V2, 157
CCMSPING, 70, 98, 106, 142
Central autoreaction methods, 162
Centralized system monitoring, 15
   Responsibilities, 61
Central system administration
   Graphical display, 156
Central system dispatching
   Activate, 165
Change analysis, 47
Change log, 104
Change Management (ITIL), 17, 20
Change Request Management, 22, 36, 49
Checks, 139
Communication interfaces, 16, 92
Computing Center Management System
   (CCMS), 53, 105
   Self-monitoring, 98
Core Interface (CIF), 29, 94
CPICERR, 93
CPU, 67
CPU load, 40
Create database data, 116
Create host data, 115
Create systems, 117
Customizing synchronization, 19

D

Data backup, 91
Database, 37, 87
   Overview, 60
Database accesses, 31
Database buffer, 89
Database growth, 88
Database structure check, 90
Index

Database time, 31
Data movement, 40
Decentralized system monitoring, 12, 15
Developer trace, 77
Documentation, 18, 56
Dump files, 81

E

EarlyWatch Alert (EWA), 20, 43, 137
   In BW reporting, 179
ECC configuration, 37
E-Learning, 19
Electronic Data Interchange (EDI), 40
End-to-end solution operation, 34
Escalation process, 56
Exception analysis, 48, 82
Extended memory, 79
External transmission processes, 167

F

File system, 65, 66

G

Generic Request and Message Generator (GRMG), 70

H

Hard disk accesses, 90
Hardware
   Overview, 59
Heap memory, 79

I

IDoc, 92
Implementation project, 35
Incident management, 20, 44
Install DataSource, 179
Instance availability, 69
Interface monitoring, 20, 40
Introscope agent, 101
I/O accesses, 89, 90
Issue, 50
Issue management, 50
ITIL, 17, 49, 51
ITIL processes, 20
IT Infrastructure Library (ITIL), 17, 49, 51
IT performance reporting, 169
IT performance reporting suite, 182
IT service operations, 30
IT support, 30

J

Java components
   Create, 118
   Performance monitoring, 150
   Set up system monitoring, 145
Java exceptions, 81
Java runtime errors, 82
Job monitoring, 31
Jobs, 71
Job scheduler, 72

K

Key performance indicators (KPIs), 37

L

Landscape reporting, 20
liveCache, 85
   Set up system monitoring, 144
Lock concept, 89
Lock entry, 89
Log file, 102
Main memory, 68
Maintenance optimizer, 108
Maintenance project, 36
Managed system, 106
Manual system monitoring, 53
Memory load, 40
Memory management, 68, 78
Message server, 123
Monitoring attribute
  Threshold values, 64
Monitoring concept, 24, 55
Monitoring frequency, 65
Monitoring object, 15, 63
  ABAP runtime error, 81
  Additional SAP components, 85
  APO, liveCache, 85
  Background processing, 71
  BW process chains, 95
Buffer, 78
CCMS, 99
Communication interfaces, 92
Consistency check, 91
CPU, 67
Data backup, 91
Database, 87
Database and table growth, 88
Database buffer, 89
Define threshold values, 65
Extended memory, 79
File system, 66
Heap memory, 79
Instance availability, 69
I/O accesses, 90
Lock entries, 89
Log file, 102
Main memory, 68
Memory management, 78
Non-SAP components, 102
Operating system collector, 69
Paging, 68
Paging memory, 79
QIN and QOUT Scheduler, 94
qRFC, 93
Roll memory, 79

SAP Solution Manager, 97
Spool service, 76
System availability, 69
System log, 80
System performance, 73
Traces, 77
tRFC, 92
User and security, 83
Monitoring processes
  Defining, 62
MTE class, 163

Non-SAP components, 102
  Define, 115, 117, 121
  Overview, 60

Onsite services, 50
Operating system, 66
Operating system collector, 69, 113
Operating system monitor, 67
Optimization project, 35
Optimizer, 58, 85
OS parameters, 37
Outsourcing, 62

Paging, 68, 78
Paging memory, 79
Performance
  Portal, 32
Performance monitoring
  Java, 150
Performance trace, 77
PI_Basis, 110
Proactive monitoring, 37, 53
Problem management, 20
Process chains, 181
Project management, 23
Project phases, 18
Index

Project team, 25
Push technology, 99

Q

QIN and QOUT Schedulers, 94
qRFC (queued Remote Function Call), 40, 93

R

Reactive monitoring, 53
Remote services, 49
Response time, 31
RFC, 92
RFC connection, 141
Roadmaps, 19
Roll memory, 79
Root cause analysis, 21, 47, 77, 101, 105, 150
RSCONN01, 161
RTCCTOOL, 109, 126
Run SAP, 34, 57
Runtime error, 81

S

Safeguarding project, 35
SAP Adapter for Quality Center by HP, 110
SAP APO, 85
SAP Basis plug-in, 110
SAP BC, 37
SAP buffer settings, 31
SAPCCM4X, 99, 100, 162
SAPCCMSR, 99, 100, 102, 145
SAPCM3X, 162
SAPconnect, 31, 158
SAP EarlyWatch Alert (EWA), 43, 137, 179
SAP EarlyWatch Check, 21, 49
SAP ESS, 118
SAP Global Support Backbone, 46
SAP GoingLive Check, 21, 49
SAP IPC, 37
SAP IST, 37
SAP liveCache, 37
SAP MaxDB, 86
SAP NetWeaver BW, 43, 88, 95, 110, 169
  Set up, 170
SAP NetWeaver Portal, 32, 70
  SAPCCMSR, 100
SAPOSCOL, 69, 103, 113
SAP OS/DB Migration Check, 49
SAP Process Scheduling Adapter, 110
SAP Remote Performance Optimization, 21
SAP service delivery, 49
SAP Service Marketplace, 21
SAP Solution Management Optimization, 21
SAP Solution Manager, 17, 33
  Alert monitor, 147
  Availability, 97
  Change request management, 49
  Change Request Management, 22
  Configuration, 113
  Content, 18
  Implementation, 17, 35
  Installation, 106
  IT Infrastructure Library (ITIL), 51
  Monitoring tool, 52
  Operations, 19
  Optimization, 21
  Portal, 21
  Root cause analysis, 21, 47
  Service desk, 44
  Service desk, 20, 158
  Solution landscape, 127
  Solution monitoring, 37
  User, 111
  Work center, 33
SAP Solution Manager 7.0, 108
SAP Solution Manager Enterprise Edition, 110
SAP Solution Manager Implementation
  Content, 109
SAP Solution Services, 109
SAP support, 21
Sarbanes-Oxley Act (SOX), 21
SAS 70, 21
Satellite system, 106, 134
  Set RFC connection, 122
  User, 113
Self-monitoring, 97
Self services, 50
Serv_Desk_Mess_on_Alert, 157
Service data control center, 109
Service desk, 20, 44
Service Desk, 158
Service Level Agreements (SLAs), 43, 63, 169
Service Level Management (SLM), 20, 42
Service level reporting, 20, 43
Services, 21
Setup system monitoring
Service, 138, 143, 144, 145
Single point of access, 16
SLD, 114
SMD agent, 101
SMTP, 159
Solution
Configure, 130
Create, 129
Solution database, 21
Solution landscape, 127
Main screen, 130
Solution manager diagnostics, 150
Solution Manager Diagnostics, 77, 81, 101
Solution monitoring, 19, 37
SOX, 21
Spool service, 76, 77
SQL trace interpreter, 109
Standard minimal documentation, 57
Standard support process, 46
ST-A/PI, 109, 111
ST-ICO, 109
ST-PI, 109, 111
ST-PSM, 110
ST-QCA, 110
ST-SE4, 109
Support packages, 107
Swapping, 68
Syntax error, 81
SYSFAIL, 93
SYSLOAD, 93
System administration, 29
System availability, 31, 37, 69
System configuration, 37
System data, 113
System landscape
Documentation, 56
System Landscape Directory (SLD), 114
System log, 80
System monitoring, 12, 20, 37
Activate for SAP systems, 140
Assign RFC connection, 134
Centralized and decentralized, 15
Change documentation, 103
Change log, 104
Copy configuration, 144
For SAP components, 142
Integrate systems, 132
Manual, 151
Prerequisites, 106
Requirements, 56
RFC connections, 141
Set up, 138
Set up for hardware, 146
Set up for Java components, 145
Set up for liveCache, 144
Toys Inc., 30
System performance, 73
System security, 83
T
Table growth, 88
Technical components
Overview, 58
Template project, 36
Test management, 19
Test organizer, 19
Three-system landscape, 22
Threshold value, 15
Threshold-value definition, 64
Time management, 16
Top issue, 51
Trace analysis, 47
Traces, 77
Transaction
RSA1, 172, 182
RSOR, 180
RZ20, 147
RZ21, 136, 137, 163, 165
SCC4, 171
SCCL, 171
SDCC, 126
SDCCN, 109, 127
SE37, 171
Implementing SAP Customer Competence Center

This book is the comprehensive guide to the building, development, and operation of an SAP Customer Competence Center. As the standard reference on SAP CCC, it brings together strategic advice, pragmatic instructions, real-life examples, and best practices. Each area of SAP CCC - from developing and establishing an SAP CCC strategy to creating and enabling employees - is addressed as it would appear in a project. In addition, the book provides practical advice on the operation of a CCC, and includes numerous examples based on the authors' project experiences to bring the concepts to life.

169 pp., 2009

Learn about the requirements for the technical, strategic, and organizational success of your SAP CCC
Manage your SAP operations and use SAP Solution Manager strategically
Benefit from numerous step-by-step solutions and best practices from international projects

W

Wily Enterprise Manager, 101, 170
Wily Introscope, 73, 101
Windows, 68
Work area, 131
Work center, 33
Root cause analysis, 48
System monitoring, 34
Workload analysis, 47, 105, 151
Workload monitor, 54, 67, 73

U

Unix, 68
Update, 75
Upgrade project, 36
Upgrade project management, 19

Utilization of hardware resources, 37