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Analysis from 30.12.2019
Until 05.01.2020
Report: SMP, Productive
Installation: 0020255413
Session: 0010000023099

EarlyWatch Alert - SMP

1 Service Summary



**This EarlyWatch Alert session detected issues that could potentially affect your system.
Take corrective action as soon as possible.**

Alert Overview

A secondary index is missing on the ORACLE database which can be important for performance.
Readiness of your system for SAP Remote Service has not been verified by running report RTCCTOOL.
Secure password policy is not sufficiently enforced.
A high number of users has critical authorizations
Protection of Passwords in Database Connections

Note: If you send SAP EarlyWatch Alert data to SAP, this report can also be viewed in the SAP ONE Support Launchpad in an interactive SAP Fiori application [SAP Note 2520319](#). Here is the link to the latest reports for this system: [SAP EarlyWatch Alert Workspace](#)
Specific links to analytical detail pages in SAP EarlyWatch Alert Workspace are included in the respective sections or in this report.

Based on these findings, it is recommended that you perform the following Guided Self-Services.

Guided Self Service	FAQ SAP Note
Security Optimization Service	1484124

For more information about Guided Self-Services, see [SAP Enterprise Support Academy](#). Register for an Expert-Guided Implementation Session for the Guided Self-Service at [SAP Enterprise Support Academy - Learning Studio - Calendar](#).

Check Overview

Topic Rating	Topic	Subtopic Rating	Subtopic
	SAP System Configuration		
			Database - Maintenance Phases
			SAP Kernel Release
	Performance Overview		
			Performance Evaluation
	SAP System Operating		
			Availability based on Collector Protocols
			Program Errors (ABAP Dumps)
			Update Errors
			Table Reorganization
	Hardware Capacity		
	Database Performance		
			Missing Indexes
			Database Key Performance Indicators
			Setup of the Temporary Tablespace
			Database Parameters
			Optimizer Statistics
	Database Administration		
			Space Statistics
			Freespace in Tablespaces
			brconnect -f check (sapdba - check) schedule
			Multibyte Character Sets
	Database Server Load From Expensive SQL Statements		

Check Overview

Topic Rating	Topic	Subtopic Rating	Subtopic
			TRANSACT-SQLORA(01)-SMP: Expensive SQL Statements
			Database Server Load
	Security		
			System Recommendations (ABAP)
			Age of Support Packages
			Default Passwords of Standard Users
			Control of the Automatic Login User SAP*
			Protection of Passwords in Database Connections
			ABAP Password Policy
			Gateway and Message Server Security
			Users with Critical Authorizations
	Software Change Management		
			Number of Changes
	Data Volume Management (DVM)		

Note: All recommendations in this report are based on our general experience. Test them before using them in your production system. Note that EarlyWatch Alert is an automatic service.

Note: If you have any questions about the accuracy of the checks in this report or the correct configuration of the SAP Solution Manager EarlyWatch Alert service, create a customer message under component SV-SMG-SER-EWA.

Note: If you require assistance to resolve concerns about the performance of the system, or if you require a technical analysis of other aspects of your system as highlighted in this report, please contact your customer representative (for example, TQM or ESA). To contact the SAP Enterprise Support advisory team or Customer Interaction Center, please refer to the local contact number specified in [SAP Note 560499](#). For details of how to set the appropriate priority level, see [SAP Note 67739](#).

Performance Indicators for SMP

The following table shows the relevant performance indicators in various system areas.

Area	Indicators	Value	Trend
System Performance	Active Users (>400 steps)	33	
	Avg. Availability per Week	100 %	
	Avg. Response Time in Dialog Task	1190 ms	
	Max. Dialog Steps per Hour	6	
	Avg. Response Time at Peak Dialog Hour	2266 ms	
	Avg. Response Time in RFC Task	1783 ms	
	Max. Number of RFCs per Hour	7523	
	Avg. RFC Response Time at Peak Hour	1722 ms	
	Hardware Capacity	Max. CPU Utilization on DB Server	26 %
Database Performance	Avg. DB Request Time in Dialog Task	98 ms	
	Avg. DB Request Time for RFC	88 ms	
	Avg. DB Request Time in Update Task	69 ms	
Database Space Management	DB Size	414.36 GB	
	DB Growth Last Month	5.96 GB	

2 Landscape

2.1 Products and Components in current Landscape

Product

System	SAP Product	Product Version
SMP~ABAP	SAP Solution Manager	7.2

Main Instances (ABAP or JAVA based)

Related System	Main Instance
SMP~ABAP	Solution Manager ABAP Stack

Databases

Related System	Database System	Database Version	DB ID
SMP~ABAP	ORACLE	12.1.0.2	SMP

2.2 Servers in current Landscape

SAP Application Servers

System	Host	Instance Name	Logical Host	ABAP	JAVA
SMP~ABAP	aocsls06a	aocsls06a_SMP_00	aocsls06a		

DB Servers

Related System	Host	Logical Host (SAPDBHOST)
SMP~ABAP	aocsls06a	aocsls06a

2.3 Hardware Configuration

Host Overview

Host	Hardware Manufacturer	Model	CPU Type	CPU MHz	Virtualization	Operating System	CPUs	Cores	Memory in MB
aocsls06a	VMware, Inc.	VMware Virtual Platform	Xeon E5-2690	2900	VMWARE	Red Hat Enterprise Linux 6 (x86_64)	4	4	64428

3 Service Data Quality and Service Readiness



The SAP Solution Manager system SMP is not fully prepared for delivery of future [remote services](#).

Rating	Check Performed
	Service Data Quality
	SAP Solution Manager Service Readiness of SMP

3.1 SAP Solution Manager Service Readiness of SMP

Rating	Check Performed
	SAP Solution Manager Software Configuration
	Service Preparation Check (RTCCTOOL)
	SAP Solution Manager Functionality

We recommend that the SAP Solution Manager is used to ship SAP Support remote services. For more information, see SAP Note [1170668](#).

3.1.1 SAP Solution Manager Software Configuration

The ST version determines which functionality can be used or is available for delivery. The ST-SER version determines the session content of services. Certain functionalities may not be available.

For further information, see SAP Notes [394616](#) and [569116](#).

SAP Component	SAP Component Version	Patch Level	Latest Avail. SAP Component Version	Latest Avail. Patch Level
ST	720	9	720	9
ST-SER	720	16	720	16

3.1.2 Service Preparation Check (RTCCTOOL)

Report RTCCTOOL was last run on 06.01.2020. During the check, the tool detected issues for which a YELLOW rating was set.

Overall Status	SAP Note	Title	Tool Status	Manual Status
	69455	Proc. after addon impl.		
	69455	Allow Online data collectors		
	69455	Addon ST-A/PI 01T_731		
	69455	ST-A/PI 01T_731 Support Package 2		
	69455	Switch on digital content verification		
	539977	Addon ST-PI 740		
	539977	ST-PI 740 Support Package 11		
	12103	Collectors and TCOLL		
	207223	EWAlert setup		

Recommendation:

Proc. after addon impl.

Procedure after implementation of Addon ST-A/PI [the addon contains specific analysis coding that is uncommented () if certain s/w components exist or supportpackage levels are met]*

In the Service preparation check, click on the button 'Addons&Upgr.' above and then press the button 'Procedure after addon implementation'. Afterwards click on the 'Refresh Status' button above.

Allow Online data collectors

Allow Online collectors for data collection

From the menu choose "Goto->Online Collectors" and choose a setting. Recommendation is to choose "Allow Online collectors" (but also "Disable" decision sets this recommendation to green).

3.1.3 SAP Solution Manager Functionality

This service session was performed for an [SAP Solution Manager](#). You may want to configure your SAP Solution Manager for use in different scenarios. SAP offers Expert Guided Implementation sessions, which allow you to create baseline functionality for implementing end-to-end solution operations. Please visit the [Expert Guided Implementation page](#) to learn more.

Overview - SAP Solution Manager Self-Diagnosis

Rating	Functionality Group
	Service Delivery Readiness
	Service Data Download Center
	Service Plan
	EarlyWatch Alert

The Self Diagnosis tool detected the following issues when checking whether the prerequisites have been fulfilled for running the SAP Solution Manager correctly. For more information about the Self Diagnosis tool, see SAP Note [1073382](#) and the related SAP Notes and documentation mentioned here.

The following tables provide details of problems found by the Self-Diagnosis tool on 06.01.2020.

Recommendation: Access the Self Diagnosis tool in SAP Solution Manager by calling transaction DSWP and choosing 'Self Diagnosis' or in the 'System Monitoring' Work Center (transaction SOLMAN_WORKCENTER). To resolve any issues, follow the instructions provided in the tool.

If these instructions are not clear, create a message in SV-SMG-SDG.

Details - SAP Solution Manager Self-Diagnosis

Rating	Alert	Functionality Group
	Some alerts of Service Delivery Readiness function are inactive	Service Delivery Readiness
	Service content update information	Service Delivery Readiness

The status of your Service Delivery Readiness is rated RED. Check the 'Service Delivery Readiness' functionality in the Self Diagnosis tool in your SAP Solution Manager system under the Function tab and review the alerts that are relevant for the cross-solution context.

For detailed documentation on this tool, see the guide at

<https://support.sap.com/en/alm/solution-manager/knowledge-transfer.html> -> How-To Documents -> [How-to: Service Delivery Readiness- SAP SolMan 7.1 SP10](#).

Also refer to SAP Note [2449008](#) - Service Delivery Readiness in ST 7.2.

4 Software Configuration for SMP



We have listed recommendations concerning the current software configuration on your system.

Your system's software versions are checked. If known issues with the software versions installed are identified, they are highlighted.

4.1 SAP Application Release - Maintenance Phases

SAP Product Version	End of Mainstream Maintenance	Status
SAP SOLUTION MANAGER 7.2	31.12.2025	

SAP updates its support backbone infrastructure. After January 1, 2020, SAP Solution Manager 7.2 systems with Support Package Stack 06 and lower will no longer be able to communicate with the SAP Support Backbone. SAP Solution Manager 7.2 Support Package Stack 07 or higher will be required. For more information, see [here](#).

Recommendation: Implement Support Package Stack 07 or higher on your SAP Solution Manager 7.2 system. For more information about SAP Solution Manager, please visit support.sap.com/solutionmanager.

In October 2014, SAP announced a maintenance extension for SAP Business Suite 7 core application releases to 2025. If you are running a relevant release, see SAP Note [1648480](#) for more details and applicable restrictions.

4.2 Support Package Maintenance - ABAP

The following table shows an overview of currently installed software components.

Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
BBPCRM	713	17	19	SAPKU71317	SAP CRM ABAP Server Component SAP CRM ABAP 7.13
BI_CONT	757	20	24	SAPK-75720INBICONT	BI CONT SAP NW 7.40 ADDON 7.57
CPRXRPM	610_740	11	13	SAPK-61011INCPRXRPM	SAP Portfolio and Project Management (ABAP) 610_740
CTS_PLUG	200	24	24	SAPK-20024INCTSPLUG	CTS Plug-in 200
IW_FNDGC	100	5	5	SAPK-10005INIWFNDGC	SAP IW FNDGC 100
IW_GIL	100	7	7	SAPK-10007INIWGIL	SAP IW Generic Interaction Layer 100

Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
MDG_FND	747	17	19	SAPK-74717INMDGFND	MDG Foundation 747
PI_BASIS	740	20	22	SAPK-74020INPIBASIS	Basis Plug-In 7.40
RTCISM	100	0	1		Integration into SAP IT Infrastructure Management 1.0 Vendor: Realtech AG
SAP_ABA	740	20	22	SAPKA74020	SAP Anwendungsbasis 7.40
SAP_AP	700	36	37	SAPKNA7036	SAP Application Platform 7.00
SAP_BASIS	740	20	22	SAPKB74020	SAP Basis Component 7.40
SAP_BS_FND	747	17	19	SAPK-74717INSAPBSFND	SAP Business Suite Foundation 747
SAP_BW	740	20	22	SAPKW74020	SAP Business Warehouse 7.40
SAP_GWFND	740	22	22	SAPK-74022INSAPGWFND	SAP NetWeaver Gateway Foundation 7.40
SAP_UI	752	7	8	SAPK-75207INSAPUI	User Interface Technology 7.50
ST	720	9	10	SAPK-72009INSTMAIN	SAP Solution Manager 7.2
ST-A/PI	01T_731	2	3	SAPKITAB9W	ST-A/PI 01T_731
ST-BCO	720	9	10	SAPK-72009INSTBCO	BI Content for SAP Solution Manager 7.2
ST-ICC	200	2	2	SAPK-20002INSTICC	Innovation Control Center 200
ST-PI	740	11	12	SAPK-74011INSTPI	Solution Tools Plugin 740
ST-SER	720	16	17	SAPK-72016INSTSER	SAP Solution Manager Service Tools 720
ST-UI	100	8	9	SAPK-10008INSTUI	SAP Fiori for SAP Solution Manager 1.0
WEBCUIF	747	17	19	SAPK-74717INWEBCUIF	SAP Web UIF 747

4.3 Database - Maintenance Phases

Database Version	End of Standard Vendor Support*	End of Extended Vendor Support*	Status	SAP Note
Oracle Database 12g Release 1	31.07.2019	31.07.2021		1174136

* Maintenance phases and duration for the DB version are defined by the vendor. Naming of the phases and required additional support contracts differ depending on the vendor. Support can be restricted to specific patch levels by the vendor or by SAP. Check in the referenced SAP Note(s) whether your SAP system requires a specific patch release to guarantee support for your database version.

The support status you receive in this report regarding your Oracle database version takes only the major release support dates into account and not whether the individual patch set level is outdated in terms of Oracle patch support. For this reason, verify in the corresponding patch set SAP Note whether the patch set you are currently using is still in the Oracle patch provisioning mode.

For more information, see the "Oracle Release" section of the "Database" section.

Recommendation: Standard vendor support for your database version has already ended / will end in the near future. Consider ordering extended vendor support from your database vendor or upgrading to a higher database version.

4.4 Operating System(s) - Maintenance Phases

Host	Operating System	End of Standard Vendor Support*	End of Extended Vendor Support*	Comment	Status	SAP Note
aocsls06a	Red Hat Enterprise Linux 6 (x86_64)	30.11.2020	30.06.2024	Limited (ELS)		936887

* Maintenance phases and duration for the operating system version are defined by the vendor. Naming of the phases and required additional support contracts differ depending on the vendor. Support can be restricted to specific patch levels by the vendor or by SAP. Check in the referenced SAP Note(s) whether your SAP system requires a specific patch release to guarantee support for your operating system version.

4.5 SAP Kernel Release

The following table lists all information about your SAP kernel(s) currently in use.

Instance(s)	SAP Kernel Release	Patch Level	Age in Months	OS Family
aocsls06a_SMP_00	749	701	7	Linux (x86_64)

4.5.1 Kernel out of date

Your current SAP kernel release is probably not up to date.

Recommendation: Make sure that you are using the recommended SAP kernel together with the latest Support Package stack for your product.

4.5.2 Additional Remarks

SAP releases Support Package stacks (including SAP kernel patches) on a regular basis for most products (generally 2–4 times a year). We recommend that you base your software maintenance strategy on these stacks.

You should only consider using a more recent SAP kernel patch than that shipped with the latest Support Package Stack for your product if specific errors occur.

For more information, see SAP Service Marketplace at

<https://support.sap.com/software/patches/stacks.html> (SAP Support Package Stack information) and <https://launchpad.support.sap.com/#/softwarecenter/support/index> (Support Packages & patch information).

For each patch there is an SAP Note in which all known regressions for this level are listed. Find it using the keyword [KRNL749PL701](#) in the SAP Note search. For detailed information, see SAP Note [1802333](#) - Finding information about regressions in the SAP kernel.

5 Hardware Capacity



We have checked your system for potential CPU or memory bottlenecks and found that the hardware is sufficient for the current workload.

Note: Hardware capacity evaluation is based on hosts for which data is at least partially available.

5.1 Overview System SMP

General

This analysis focuses on the workload during the peak working hours (**9-11, 13**) and is based on the hourly averages collected by SAPOSCOL. For information about the definition of peak working hours, see SAP Note [1251291](#).

CPU

If the average CPU load exceeds **75%**, temporary CPU bottlenecks are likely to occur. An average CPU load of more than **90%** is a strong indicator of a CPU bottleneck.

Memory

If your hardware cannot handle the maximum memory consumption, this causes a memory bottleneck in your SAP system that can impair performance. The paging rating depends on the ratio of paging activity to physical memory. A ratio exceeding **25%** indicates high memory usage (if Java has been detected **0%**) and values above **50%** (Java **10%**) demonstrate a main memory bottleneck.

Server	Max. CPU load [%]	Date	Rating	RAM [MB]	Max. Paging [% of RAM]	Date	Rating	Analysis Start	Analysis End
aocsls06a	26	31.12.2019		64.428	0			30.12.2019	05.01.2020

Note: For virtualization or IaaS scenarios (for example, IBM PowerVM, VMware, Amazon AWS, ...) it is possible that the CPU rating for some hosts is YELLOW or RED, even though the utilization value is quite low. In this case, the relevant host could not use maximum usable capacity due to a resource shortage within the virtualized infrastructure (for example, IBM PowerVM: Shared Pool CPU utilization).

6 Workload Overview SMP

6.1 Workload By Users

User activity is measured in the workload monitor. Only users of at least medium activity are counted as 'active users'.

Users	Low Activity	Medium Activity	High Activity	Total Users
dialog steps per week	1 to 399	400 to 4799	4800 or more	
measured in system	41	23	10	74

6.2 Workload By Task Types

This chart displays the main task types and indicates how their workload is distributed in the system.

Task Type	Response Time[s]	DB Time[s]	CPU Time[s]	GUI Time in s
RFC	978192	48193	73908	0
Batch	252486	50466	40282	0
Others	40227	3604	3604	89

The chart below lists the top task types in terms of total response time in s.

6.3 Top Applications

This table lists the top applications of the RFC task type. The unit of measure is milliseconds [ms] for average time and seconds [s] for total time.

RFC Profile

Initial System	Initial Action	Total Response Time[s]	% of Total Load	Steps	Avg. Resp. Time[ms]	Avg. Proc. Time[ms]	Avg. CPU Time[ms]	Avg. DB Time[ms]
SMP/aocsls06a_SMP_00	SAPMSSY8	542168	42.7	6052	89585	23	18	4
SMP/aocsls06a_SMP_00	EFWK RESOURCE MANAGER	232729	18.3	200089	1163	477	139	160
SMP/aocsls06a_SMP_00	E2E BI HOUSEKEEPING	30127	2.4	1043	28885	27030	26098	1836
SMP/aocsls06a_SMP_00	BI_WRITE_PROT_TO_APPLLOG	13407	1.1	2100	6384	6009	12	373
SMP/aocsls06a_SMP_00	/BDL/TASK_PROCESSOR	8670	0.7	299	28998	4256	1001	18904
SMP/aocsls06a_SMP_00	SAP_ALERT_HOUSEKEEPING	4058	0.3	175	23191	17	8	23173
SMP/aocsls06a_SMP_00	SAP_ALERT_CALCULATION_ENGINE	3649	0.3	41532	88	57	33	29
SMP/aocsls06a_SMP_00	SM:EXEC_MULT_SESS_2	2943	0.2	777	3788	204	170	1749
SMP/aocsls06a_SMP_00	SM:EXEC_MULT_SESS_1	2082	0.2	1821	1143	163	127	538
SMP/aocsls06a_SMP_00	SAP_COLLECTOR_PERFMON_SWNCCOLL	1518	0.1	855	1776	1374	1416	388

This table lists the top applications of the Batch task type. The unit of measure is milliseconds [ms] for average time and seconds [s] for total time.

Jobs Profile

Report	Response Time[s]	% of Total Load	Steps	CPU Time[s]	DB Time[s]
E2E_EFWK_RESOURCE_MGR	71671	5.6	9987	1980	2929
/UI5/APP_INDEX_CALCULATE	37544	3.0	336	16981	18195
E2E_HK_CONTROLLER	25994	2.0	7	1	1
RSN3_STAT_COLLECTOR	22560	1.8	336	51	63
AGS_TD_SCHEDULE_IMPORT	13192	1.0	6076	2488	1775
CCMSBI_TWINCUBE_REORG	11131	0.9	161	2616	5366
SWNC_TCOLL_STARTER	7646	0.6	2846	3081	2996
ACE_CALCULATION_CONTROLLER	6377	0.5	10019	572	2055
RSDBAJOB	5450	0.4	17	1	1
RLMDB_UPLOAD_BACKGROUND	4319	0.3	168	915	2290

6.4 RFC Load by Initiating Action

The load in task type RFC is shown. In the workload monitor, this information is shown as 'Load from External Systems'. The calling system can be an application server of the system itself or any external system using the RFC interface. The 'Initial Action' is the calling program initiating the RFC. The total response time for each initial action is shown as an absolute value and as a percentage compared to the total RFC load considered in this table. The average times (per dialog step) are shown in milliseconds [ms].

Calls from external systems are shown if they account for at least 8h or 5% of the total RFC load. Local calls are shown if they account for at least 24h or 20% of the total RFC load.

Load Overview

Initial System	Load [s]	Load %
Local system SMP	818.015	99,85
Sum of external systems	1.210	0,15
RFC load (sum of above)	819.225	100,00
RFC load in Performance Overview	984.912	120,22
Load of all task types in Performance Overview	1.270.905	155,14

Top 20 RFC Calls From Local System - Average Times [ms]

Initial System	Initial Action	Total Resp. Time in s	% of RFC Load	Avg. Response Time	Avg. CPU Time	Avg. DB Time	Avg. Roll Wait Time
SMP	SAPMSSY8	521.667	63,68	89.726,0	18,0	4,5	0,8
SMP	EFWK RESOURCE MANAGER	222.326	27,14	1.153,9	139,7	158,7	1,8

Top 20 RFC Calls From Local System - Average Times [ms]

Initial System	Initial Action	Total Resp. Time in s	% of RFC Load	Avg. Response Time	Avg. CPU Time	Avg. DB Time	Avg. Roll Wait Time
SMP	E2E BI HOUSEKEEPING	26.381	3,22	28.832,2	26.043,8	1.844,6	0,1
SMP	BI_WRITE_PROT_TO_APPLLOG	12.866	1,57	6.381,8	11,8	370,8	0,1
SMP	/BDL/TASK_PROCESSOR	10.020	1,22	62.233,5	1.003,0	17.432,5	0,0
SMP	SAPMHTTP	6.942	0,85	488,5	314,4	86,3	0,0
SMP	SAP_ALERT_HOUSEKEEPING	3.858	0,47	22.963,1	8,2	22.944,3	0,0
SMP	SAP_ALERT_CALCULATION_ENGINE	3.503	0,43	87,9	32,9	28,6	0,1
SMP	SM:EXEC_MULT_SESS_2	2.945	0,36	3.770,9	169,3	1.740,0	0,1
SMP	SM:EXEC_MULT_SESS_1	2.084	0,25	1.141,7	127,1	536,4	0,1
SMP	SAP_COLLECTOR_PERFMON_SWNCCOLL	1.462	0,18	1.780,7	1.419,1	389,0	0,1
SMP	SM:SELFDIAGNOSIS	786	0,10	1.559,9	196,9	109,8	0,1
SMP	GN_GENERATE_CHECK	515	0,06	14.721,9	5.305,1	6.630,3	0,1
SMP	SM:EXEC_MULT_SESS_3	380	0,05	435,7	56,9	196,2	0,1
SMP	SM:EXEC_MULT_SESS_5	362	0,04	274,6	46,6	129,5	0,1
SMP	SM:EXEC_MULT_SESS_4	312	0,04	278,7	45,2	127,4	0,1
SMP	DIAGLS_COMPUTE_STATUS	280	0,03	58,2	10,8	5,8	0,0
SMP	SM:AGS_SISE_SUPHUB_OUTBOX_PROCES	242	0,03	729,8	14,1	9,7	0,1
SMP	E2E DPC SELFMON	211	0,03	316,5	72,2	121,4	0,1
SMP	SM:CHECK_DVM_SYSTEMS	197	0,02	7.558,3	26,5	3.114,0	0,0

7 Performance Overview SMP



The performance of your system was analyzed with respect to average response time and total workload. No problems that could significantly impair system performance were detected.

Rating	Check
	Performance Evaluation

7.1 Performance Evaluation

The following table shows the average response times of task types running in dialog work processes. Data is from Solution Manager BW.

Dialog WP related task types

Task Type	Steps	Avg. Resp. Time[ms]	Avg. CPU Time[ms]	Avg. Wait Time[ms]	Avg. DB Time[ms]	Avg. GUI Time[ms]
RFC	548502	1783	135	1	88	0
HTTP(S)	55969	128	89	0	24	0
Dialog	88	1190	66	0	98	1009

The measured times are compared against reference times to provide a rating.

- If the task type is not listed in the "Task Type Overview" table in the "Workload Overview SMP" section, the task type is not included in the evaluation.

- DIALOG, RFC, and HTTP(S) are considered to be related to the end user's dialog activity.

The table below indicates that performance problems are anticipated for tasks rated YELLOW or RED.

Ratings

Task	Steps	Application Server Performance	Database Server Performance
RFC	548502		

Time Profile Rating

Rating	Task	Time	Steps	Avg. Response Time[ms]	Avg. CPU Time[ms]	Avg. Database Time[ms]
	RFC	01-02	23.285	2.841	1.099	157

Reference Times

Task	Ref. for Avg. Response Time[ms] - Yellow Rating	Ref. for Avg. Response Time[ms] - Red Rating	Ref. for Avg. DB time[ms] - Yellow Rating	Ref. for Avg. DB time[ms] - Red Rating
RFC	2.400	3.600	1.200	1.800

The chart below displays the time profile for the RFC task type.

8 Trend Analysis for SMP



The performance of your system was analyzed with respect to the trend of response times per system and per application. We found no major problems that could affect system performance.

Rating table

Rating	Check	Description
	History of response time of SMP	The long-term or short-term analysis of the response time does not show a critical trend
	Application profile of SMP	The long-term analysis of applications does not show a critical trend

In the following, we analyzed the trend within the following time frames:

Short term: From calendar week 50/2019 to 01/2020

Long term: From calendar week 28/2019 to 01/2020

8.1 History of Response Time of SMP

We analyzed the growth of the average response time within this system. The long-term is %/year and short-term is %/year. This is not critical and no action is required.

The graphs below show the time profiles of the following task types: RFC.

In the following, we analyzed the trend within the following time frames:

Short term: From calendar week 50/2019 to 01/2020

Long term: From calendar week 28/2019 to 01/2020

The table below shows the long-term and short-term growth in average response time extrapolated to a year.

Growth Extrapolated To A Year

Task Type	Long Term Growth (%/year)	Trend	Rating	Short Term Growth (%/year)	Trend	Rating
ALL	-13,1			-50,1		
RFC	-15,6			49,0		

The table below shows the long-term and short-term weekly average growth in the average response time.

Average Growth

Task Type	Long Term Growth (%/week)	Trend	Rating	Short Term Growth (%/week)	Trend	Rating
ALL	-0,3			-1,0		

Average Growth

Task Type	Long Term Growth (%/week)	Trend	Rating	Short Term Growth (%/week)	Trend	Rating
RFC	-0,3			0,9		

Rating Legend

	The trend is only for information
	The trend is not critical
	The trend is critical
	The trend is very critical

8.2 Application profile

In the following, we analyzed the trend within the following time frames:

Short term: From calendar week 50/2019 to 01/2020

Long term: From calendar week 28/2019 to 01/2020

The table below shows the time profile of the top applications by total workload during the analyzed period.

Top Applications by Response Time

Task Type	Application	Total Resp. Time in s	% of Total Load	Avg. Resp. Time in ms	Long Term Growth (%/year)	Short Term Growth (%/year)	Avg. DB Time in ms	Avg. CPU Time in ms
RFC	SMP/aocsls06a_SMP_00 SAPMSSY8	13892013	62	93555	-5,9	71,1	5	19
RFC	SMP/aocsls06a_SMP_00 EFWK RESOURCE MANAGER	6850617	30	1477	-43,7	38,0	171	140
RFC	SMP/aocsls06a_SMP_00 E2E BI HOUSEKEEPING	677518	3	30252	-8,7	-34,2	2735	26780
RFC	SMP/aocsls06a_SMP_00 BI_WRITE_PROT_TO_APPLLOG	318262	1	6377	0,1	-2,1	363	12
RFC	SMP/aocsls06a_SMP_00 SAP_ALERT_HOUSEKEEPING	116403	1	27715	93,1	-405,9	26832	6
RFC	SMP/aocsls06a_SMP_00 SM:EXEC_MULT_SESSIONS_2	88304	0	5048	-7,0	-225,9	2123	180
RFC	SMP/aocsls06a_SMP_00 BDL/TASK_PROCESSOR	86117	0	27942	3,9	3,4	20026	1147
RFC	SMP/aocsls06a_SMP_00 SM:EXEC_MULT_SESSIONS_1	60771	0	1278	2,0	126,6	549	140
HTTP (S)	BSPWDAIC_CMCD_M	50325	0	2075	-21,7	-6,1	384	922
RFC	SMP/aocsls06a_SMP_00 SAP_ALERT_CALCULATION_ENGINE	42652	0	89	-111,9	-24,4	28	33

Top Applications by Response Time

Task Type	Application	Total Resp. Time in s	% of Total Load	Avg. Resp. Time in ms	Long Term Growth (%/year)	Short Term Growth (%/year)	Avg. DB Time in ms	Avg. CPU Time in ms
RFC	SMP/aocsls06a_SMP_00 SAP_COLLECTOR_PERFMON_SWNCCOLL	37462	0	1825	-2,8	41,3	391	1468
HTTP (S)	BSPWDAIC_HOME	29009	0	579	-16,6	176,8	131	622
RFC	SMP/aocsls06a_SMP_00 ABAP CALL MONITOR: COLLECT	27747	0	6341	25,7	148,7	5132	1739
HTTP (S)	BSPWDAIC_INCIDENT_M	26838	0	822	-17,5	26,1	175	620
RFC	SMP/aocsls06a_SMP_00 SM:EXEC_MULT_SESSIONS_3	20350	0	858	-83,1	-3,0	373	83
RFC	SMP/aocsls06a_SMP_00 UIF/CHECK_LOAD_4_CONS_BG	20229	0	4915	24,5	403,2	1842	2902
HTTP (S)	BSPWDAIC_CMCR_M	17689	0	980	-20,5	-25,4	209	776
RFC	SMP/aocsls06a_SMP_00 SM:SELFDIAGNOSIS	16230	0	1801	1,9	-93,9	126	223
RFC	D12/sap-dev30_D12_00 SPRO	12282	0	994	1,4	26,3	55	101
RFC	SMP/aocsls06a_SMP_00 GN_GENERATE_CHECK	12193	0	13887	1,4	84,9	6277	5322

The graph below shows how the average response time of the top five applications varies over time. Data is normalized to 100% equaling the average value.

9 SAP Solution Manager General of SMP

Rating of Sub-Checks

Check	Rating
Managed System Configuration	
Diagnostics Agents	
Background Jobs	

9.1 Managed System Configuration

This check provides a summary of the status of the systems in the managed system configuration. To analyze the details, call transaction SOLMAN_SETUP. For more information, see the SAP Solution Manager Setup Wiki at <http://wiki.scn.sap.com/wiki/display/SMSETUP/Home>.

Managed System Configuration Status for Technical Systems

Category	Status	Total #	AS ABAP	AS Java	Others
# Auto Conf. Status	green	0	0	0	0
	yellow	13	8	5	0
	red	2	1	1	0
	grey	11	6	3	2
	Total #	26	15	9	2
# update needed		3	3	0	0

RFC and Plug-In Status for ABAP Systems

Category	Status	# Technical Systems
RFC Status	green	11
	red	3
	grey	1
Plug-In Status	green	12
	red	3
	grey	0

The check is rated YELLOW because:

- More than 10% of all the rated systems have a YELLOW or RED auto configuration status and/or
- More than 10% of the rated ABAP systems have a RED RFC status and/or
- There are managed systems with the status "Update needed".

Recommendation: Review the configuration of your managed systems with respect to the auto configuration status, the RFC status, and the "Update needed" status.

9.2 Diagnostics Agents

The following table provides an overview of the status of the diagnostics agents, which can also be monitored from the Solution Manager Launchpad in the Agents Administration. For more information about the Diagnostics Agents, check the following Wiki: <https://wiki.scn.sap.com/wiki/display/SMSETUP/Diagnostics+Agents>

Diagnostics Agents (Status)

Agent Status	# of Agents
Agents 'Started'	27
Agents 'Stopped'	0
Agents 'Disconnected'	4
Agents 'Grey'	0

The check is rated GREEN because:

- Fewer than 2000 Diagnostics Agents are configured and/or
- Less than 10% of all rated Diagnostics Agents are not active (green)

9.3 Background Jobs

In this check, the background processing in transaction SM37 that is specific to SAP Solution Manager is evaluated. For this purpose, a number of different SAP Solution Manager standard jobs are checked for their executions in the last 4 weeks. To obtain a better overview, the various jobs are divided into generic SAP Solution Manager jobs (jobs with a job name starting with "SM:") and other standard SAP Solution Manager jobs.

If at least one of the evaluated jobs has been canceled in at least one of the last ten executions, the line in the table is rated RED. In this case, the check shows the name of the canceled jobs in a second table. If both lines in the first table are rated GREEN, the background processing in your SAP Solution Manager needs no further attention.

BGJobs Overview

Job Category	Available Distinct Jobs	Occurrences	Jobs Cancelled	Rating
Generic SSM Jobs	76	26639	0	
Other	27	72715	1	

The evaluation of your SAP Solution Manager background jobs was rated GREEN.

10 SAP Solution Manager Usage of SMP

The number of managed systems, diagnostics systems, implementation projects, and solutions indicates the scale of usage of this SAP Solution Manager. The number of connected managed systems is derived from the available systems in transaction SOLMAN_SETUP, whereas the number of diagnostics systems is the number of systems for which Solution Manager Diagnostics is active. The projects can be found in transaction SOLAR01, whereas the solutions can be found in the Solution Manager Administration work center. For more information, see the [SAP Solution Manager](#) in the SAP Support Portal or the [End-to-End Root Cause Analysis](#) Page in the Technical Operations Wiki. Furthermore, the total number of EWA sessions in the system is evaluated.

Overview – SAP Solution Manager Usage

Application Area	Object Type	# of Objects
System Landscape	Connected Managed Systems	26
Solution Manager Diagnostics	Number of Diagnostics Systems	16
Implementation	Solutions	2
Implementation	Branches	2
Operations	Change Control Landscapes	2
Operations	Logical Component Groups	5
EarlyWatch Alert	Sessions	7895
EWA Status		# of Sessions
Session created		344
Session reset (deleted)		7551
Session recreated after being reset		0

EWA Status	# of Sessions
Session was archived and deleted from the database	0
Session archived and available in the database	0

The number of EWA sessions is evaluated from table DSVASSESSONHEAD, where these sessions are marked with a particular status as shown in the following table. In general, you want the system to keep this data for a longer time. Since some of this data may be quite extensive (service sessions 1-20 MB, documents 1-10 MB), the database of the SAP Solution Manager system might increase remarkably in size depending on how many systems have been connected. For details about archiving service sessions in SAP Solution Manager, see SAP Note [546685](#).

10.1 Application-Specific Usage

The tables in this section provide an overview as to whether and to what extent some selected scenarios in SAP Solution Manager are used. For an overview of all the supported processes, check the [SAP Solution Manager Processes](#) in the SAP Support Portal.

10.1.1 Collaboration

The collaboration scenario includes service delivery, problem management (with issues, top issues, and tasks), and expertise on demand (EoD). The number of service delivery objects counts delivered [standard remote services](#) such as SAP EarlyWatch Check, SAP GoingLive Check, SAP GoingLive Functional Upgrade Check, and SAP OS/DB Migration Check. The "Last Created" column indicates whether the functionality is still in use. For more information about the collaboration platform, see SAP Note [914722](#).

Collaboration Scenario

Application Area	# of Objects	Last Created
Service Delivery	8	30.03.2015
Issues	24	01.09.2019
Expertise on Demand (EoD)	0	00.00.0000

10.1.2 IT Service Management

This check shows how many Business Partners and transaction types exist in the system for the [IT Service Management](#) functionality. For the different transaction types, the entries with the number of objects show how many messages exist in the system and how many of them were created in the EWA time frame.

IT Service Management

Application Area	# of Objects
Business Partners	921
Transaction Types	1
JCC Incident (ZMIN)	1252
- created in EWA timeframe	18

10.1.3 Change Request Management

In standard [Change Request Management](#), SAP delivers seven messages types; all other message types are created by the customer. The number of change request transactions (created in the last 10 days) indicates whether and to what extent the scenario is used.

Change Request Management Scenario

Application Area	# of Objects
Process Types	0
Change Request Transactions	0
- created in last 10 days	0
ChaRM activated Projects	0
Task Lists	9

10.1.4 Implementation Scenario

The number of defined business scenarios and defined business processes and steps indicate whether and to what extent the implementation scenario is used. It includes all business scenarios and business processes that have been defined in the different projects and can be checked in transaction SOLAR01.

Implementation Scenario

Application Area	# of Objects
Defined Solutions	1
Defined Branches	2
Defined Business Scenarios	44
Defined Business Processes	19440

10.1.5 Test Management

The test management scenario is part of the implementation scenario. A number larger than zero indicates whether and to what extent the test management functionality is used. The functionality can be accessed using the Test Management work center.

Test Management Scenario

Application Area	# of Objects	# of Test Cases	# of Messages assigned	Last Status Analysis
Test Plans	0	0	0	00.00.0000
Test Packages	0	0	0	00.00.0000

10.1.6 Business Process Monitoring (MAI based)

The following table shows the different MAI Scenarios and their usage.

Business Process Monitoring

MAI Use Case	# of Monitoring Objects
Job Monitoring	0
Interface Channel Monitoring	0
Business Process Monitoring	0

10.1.7 Job Scheduling Management

This check shows how many job requests and how many job documents have been created in SAP Solution Manager and how many of them were created in the EWA time frame.

Number of job requests and job documentations

Application Area	Number of object
Number of Job Requests	0
- Created in EWA timeframe	0
Number of Job Documentations	1
- Created in EWA timeframe	0

10.1.8 Focused Solution

Focused Solution is not installed. For more information about the Focused Solutions, refer to the Support Portal at: <https://support.sap.com/solution-manager/focused.html>

11 SAP System Operating SMP



Your system was analyzed with respect to daily operation problems. We did not detect any major problems that could affect the operation of your SAP System.

11.1 Availability based on Collector Protocols

A value of 100% means that the collector was available all day. "Available" in the context of this report means that at least one SAP instance was running. If the SAP collector was not running correctly, the values in the table and graphics may be incorrect.

To check these logs, call transaction ST03N (expert mode) and choose "Collector and Performance DB -> Performance Monitor Collector -> Log".

This check is based on the logs for job COLLECTOR_FOR_PERFORMANCEMONITOR that runs every hour.

The job does NOT check availability; it carries out only general system tasks such as collecting and aggregating SAP performance data for all servers/instances. The log does not contain any direct information about availability; it contains only information about the status of the hourly statistical data collection.

As of SAP Basis 6.40, system availability information is available in the CCMS (Computing Center Management System) of an SAP System, in Service Level Reporting of SAP Solution Manager. This function is provided by the relevant Solution Manager Support Packages as an advanced development. For more information, refer to SAP Note 944496, which also lists the prerequisites that must be fulfilled before implementation can take place."

11.2 Update Errors

In a system running under normal conditions, only a small number of update errors should occur. To set the rating for this check, the number of active users is also taken into consideration.

We did not detect any problems.

11.3 Table Reorganization

The largest tables and/or rapidly growing tables of system SMP were checked. No standard SAP recommendations for the applicable data volume management were found.

11.4 Program Errors (ABAP Dumps)

3 ABAP dumps have been recorded in your system in the period 30.12.2019 to 03.01.2020. ABAP dumps are generally deleted after 7 days by default. To view the ABAP dumps in your system, call transaction ST22 and choose Selection. Then select a timeframe.

Date	Number of Dumps			
30.12.2019	1			
31.12.2019	1			
01.01.2020	0			
02.01.2020	0			
03.01.2020	1			

Name of Runtime Error	Dumps	Server (e.g.)	Date (e.g.)	Time (e.g.)
GETWA_NOT_ASSIGNED	3	aocsls06a_SMP_00	03.01.2020	10:37:07

It is important that you monitor ABAP dumps using transaction ST22 on a regular basis. If ABAP dumps occur, you should determine the cause as soon as possible.

Based on our analysis, we expect no serious problems at the moment.

12 Security



**Critical security issues were found in your system.
See the information in the following sections.**

Rating	Check
	System Recommendations (ABAP)
	Age of Support Packages
	Default Passwords of Standard Users
	Control of the Automatic Login User SAP*
	Protection of Passwords in Database Connections
	ABAP Password Policy
	Gateway and Message Server Security
	Users with Critical Authorizations

12.1 ABAP Stack of SMP

12.1.1 Age of Support Packages

The following table shows the current status, the final assembly date at SAP, and the implementation date of selected key software components that are installed in the system.

Software Component	Release	Support Package	Final assembly date	Age of final assembly date in months	Support Package import date	Age of SP import date in months
BBPCRM	713	17	14.09.2018	16	12.10.2019	3
BI_CONT	757	20	03.12.2018	13	12.10.2019	3
SAP_ABA	740	20	27.06.2018	19	12.10.2019	3
SAP_BASIS	740	20	28.06.2018	19	12.10.2019	3
SAP_GWFND	740	22	28.06.2019	6	12.10.2019	3
ST	720	9	07.06.2019	7	12.10.2019	3

Security fixes for SAP NetWeaver-based products are delivered with the support packages of these products. For all SAP Notes with high or very high priority, SAP provides this service for the support packages from the last 24 months (refer to <https://support.sap.com/securitynotes> for further details).

Recommendation: Run a support package update at least once a year (refer to <https://support.sap.com/en/my-support/software-downloads/support-package-stacks.html> for further details) and evaluate SAP Security Notes once a month in relation to the monthly SAP Security Patch Day.

12.1.2 Protection of Passwords in Database Connections

Database user passwords of connected systems can be found in table DBCON.

Recommendation: Execute the valid manual postprocessing step described in SAP Security Note [1823566](#).

Note: This Note is valid for all ABAP installations that use database connections, including when the text focuses on SAP Solution Manager. The Note refers to SAP Solution Manager because typically, many DB connections are maintained.

If this recommendation is displayed, there are DB connections with passwords on the analyzed system. Although transaction DBCO (which you use to maintain such DB connections) does not show the passwords, you can find the obfuscated passwords using transaction SE16 for table DBCON with the field value PASSWORD <> space.

12.1.3 ABAP Password Policy

If password login is allowed for specific instances only, the password policy is checked only for these instances.

12.1.3.1 Password Complexity

Parameter: login/min_password_lng

Rating	Instance	Current Value(s)	Recommended Value
	aocsls06a_SMP_00	6	8

The current system settings allow a password length of fewer than 8 characters. This allows weak passwords. Attackers may successfully recover these passwords and gain unauthorized access to the system.

Recommendation: Assign a minimum value of 8 to the profile parameter login/min_password_lng.

In addition, SAP provides options to enforce complex passwords. Find the current settings of the corresponding profile parameters in the following table.

Parameter	Instance	Current Value(s)
login/min_password_digits	aocsls06a_SMP_00	0
login/min_password_letters	aocsls06a_SMP_00	0
login/min_password_lowercase	aocsls06a_SMP_00	0
login/min_password_uppercase	aocsls06a_SMP_00	0
login/min_password_specials	aocsls06a_SMP_00	0

Recommendation: Enforce a minimum of 3 independent character categories using the corresponding profile parameters. For more information, see SAP Note [862989](#) and the section [Profile Parameters for Logon and Password \(Login Parameters\)](#) either on SAP Help Portal or in the SAP NetWeaver AS ABAP Security Guide.

12.1.3.2 Validity of Initial Passwords

Rating	Parameter	Instance	Current Value(s)
	login/password_max_idle_initial	aocsls06a_SMP_00	0

Initial passwords are valid for more than 14 days.

Recommendation: Proceed as follows:

-- Handle users of type C (Communication) with initial passwords because they will be locked if the above profile parameter is set.

Use transaction SUIM/report RSUSR200 in each client to find users of type C (Communication).

If these users are active and in use, switch the user type to B (System). This has no negative effect.

- Restrict the password validity to 14 days or less. Note that the value 0 grants unlimited validity.

- For more information, see SAP Note [862989](#) and the [Profile Parameters for Logon and Password \(Login Parameters\)](#) section, either on SAP Help Portal or in the SAP NetWeaver AS ABAP Security Guide.

12.1.4 Users with Critical Authorizations

For more information about the following check results, see SAP Note [863362](#).

Recommendation: Depending on your environment, review your authorization concept and use the Profile Generator (transaction PFCG) to correct roles and authorizations. You can use the User Information System (transaction SUIM) to check the results. For each check, you can review the roles or profiles that include the authorization objects listed in the corresponding section.

12.1.4.1 Super User Accounts

Users with authorization profile SAP_ALL have full access to the system. There should be a minimum of such users. The number of users with this authorization profile is stated for each client.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
000	10	18	
001	6	280	
100	5	21	

Authorization profile:

SAP_ALL

12.1.4.2 Users Authorized to Change or Display all Tables

Unauthorized access to sensitive data is possible if too many users have this authorization. The specified number of users for each client have the checked authorization.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
001	101	280	
100	7	21	

Authorization objects:

Object 1: S_TCODE with TCD=SE16, TCD=SE16N, TCD=SE17, TCD=SM30, or TCD=SM31

Object 2: S_TABU_DIS with ACTVT = 03 or 02 and DICBERCLS = *

12.1.4.3 Users Authorized to Start all Reports

This authorization allows critical functions and reports that do not contain their own authorization checks to be executed. The specified number of users for each client have the checked authorization.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
001	54	280	

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
066	2	2	
100	7	21	

Authorization objects:

Object 1: S_TCODE with TCD=SE38 or TCD=SA38 or TCD=SC38

Object 2: S_PROGRAM with P_ACTION=SUBMIT P_GROUP=*

12.1.4.4 Users Authorized to Debug / Replace

This authorization provides access to data and functions, since any authorization check that is built in ABAP can be bypassed. In addition, you can change data during processing, which may lead to inconsistent results. The specified number of users for each client have the checked authorization.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
001	33	280	
100	7	21	

Authorization objects:

Object 1: S_DEVELOP with ACTVT=02 (change) and OBJTYPE=DEBUG

Note: If you do not want to disable development in your system, you have to exclude the

OBJTYPE=DEBUG with ACTVT=02 from the profile and allow any other object type for S_DEVELOP. This means that development and debugging with visualization is still possible.

You can achieve this by linking two authorizations to the object S_DEVELOP: one with all object types (except for "DEBUG") and all activities, and another for the object type DEBUG only and all activities (except for 02).

12.1.4.5 Users Authorized to Display Other Users Spool Request

This authorization allows unauthorized access to sensitive data contained in spool requests. The specified number of users for each client have the checked authorization.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
001	49	280	
100	6	21	

Authorization objects:

Object 1: S_TCODE with TCD = SP01 or SP010

Object 2: S_ADMI_FCD with S_ADMI_FCD = SP01 or SP0R

Object 3: S_SPO_ACT with SPOACTION = BASE and DISP and SPOAUTH = * or __USER__

12.1.4.6 Users Authorized to Administer RFC Connections

If too many users have this authorization, two problems can occur:

- Unauthorized access to other systems
- Malfunction of interfaces if invalid connection data is entered

The specified number of users for each client have the checked authorization.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
001	48	280	
100	7	21	

Authorization objects:

Object 1: S_TCODE with TCD=SM59

Object 2: S_ADMI_FCD with S_ADMI_FCD = NADM

Object 3: S_RFC_ADM with ACTVT NE 03, 39

12.1.4.7 Users Authorized to Reset/Change User Passwords

The following users are allowed to change and reset the passwords of users. This is very risky because any of these users could change the password and log on themselves with another user. The only consequence is that the "real user" would no longer be able to log on because the password would have been changed. However, this normally results in the password being reset, because there is a chance that the "real user" might have forgotten the correct password.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
001	62	280	
066	1	2	
100	5	21	

Authorization objects:

Object 1: S_TCODE with TCD=SU01 or TCD=OIBB or TCD=OOUS or TCD=OPF0 or TCD=OPJ0 or TCD=OVZ5

Object 2: S_USER_GRP with ACTVT=05

13 Software Change and Transport Management of SMP



No critical software change management issues were found in your system.

13.1 SAP Netweaver Application Server ABAP of SMP

Rating	Check Performed
	Number of Changes

13.1.1 Number of Changes

Performing changes is an important cost driver for the IT department. It is only acceptable to make a large number of software and configuration changes in exceptional situations, such as during go-live for an implementation project.

The following diagram shows the number of changes per day that were performed in the SAP system in the last week. The data is extracted from the Change Diagnostics application in SAP Solution Manager. The changes are grouped into "Software Maintenance" (such as support or enhancement packages), "Parameter" (instance, database, operating system), "Transport Requests", "SAP Notes", and "Miscellaneous" (such as security settings).

Date	Security	Software Maintenance	Parameter	Transport Requests	SAP Notes	Miscellaneous
30.12.2019	0	0	0	0	0	1
31.12.2019	0	0	0	0	0	1
01.01.2020	0	0	0	0	0	1
02.01.2020	0	0	0	0	0	1
03.01.2020	0	0	0	0	0	1

Date	Security	Software Maintenance	Parameter	Transport Requests	SAP Notes	Miscellaneous
04.01.2020	0	0	0	0	0	1
05.01.2020	0	0	0	0	0	1

14 Database Performance



We have detected some problems with the settings of the database. These settings may affect performance.

Rating	Check
	Missing Indexes
	Database Key Performance Indicators
	Setup of the Temporary Tablespace
	Database Parameters
	Optimizer Statistics

14.1 Load per User

The following table provides an overview of the load caused by different database users. The data in the table is based on samples of session activity in the system over the past seven days.

Load per User

User Name	Load (%)
%GDPR%	51
SAPSR3	46

Load per User

User Name	Load (%)
SAPSR3DB	3

14.2 Missing Indexes

Name of Missing Database Index
/BIC/F100004-010
/BIC/F100004-020
/BIC/F100004-030
/BIC/F100004-040
/BIC/F100004-050
/BIC/F100004-060
/BIC/F100004-070
/BIC/F100004-080
/BIC/F100004-090
/BIC/F100004-100
/BIC/F100004-110
/BIC/F100004-120
/BIC/F100004-130

The above indexes are defined in the SAP Data Dictionary but do not exist on the database.

Recommendation: Find out whether there were good reasons for deleting the above indexes. If not, recreate the indexes to improve performance. If an index was deleted intentionally, you can register it in the check algorithm so that the index is no longer listed in this check (see [SAP Note 33814](#)).

14.3 I/O performance reported by Oracle statistics

Important I/O Performance Counters

Performance-Indicators	Description	Observed-Value	Reference-Value
db file sequential read	Indicates the average time in ms a session is waiting for a read request from disk to complete.	0	<=15
log file sync	Indicates the average time in ms a session is waiting for a Commit (or a Rollback).	2	<=15

Oracle stores wait situations that have occurred since the last database startup in the Dynamic Performance View V\$SYSTEM_EVENT. The I/O related events that have the most influence on the performance of your system are listed in the table above, together with threshold values derived from our experience.

14.4 Performance History

This section shows where DB time has been spent in the past. This helps to compare DB load at different times and is a basis for target-oriented tuning. By having information on the most time-consuming areas in the database, these areas can be tuned carefully to maximize DB time savings. Depending on where DB time is mainly spent, different tuning activities will need to be performed. Further information on wait events and possible follow-up actions for specific wait events can be found in [SAP Note 619188](#).

DB Time

The following diagram shows where DB time was spent during the past 7 days.

The following diagram shows the distribution of the DB time per hour for the past 7 days.

IO-related wait events usually take up the most DB time. Details for those wait events are shown in the following diagrams.

A higher than usual total time for a wait event can be due to more waits, an increase in the average wait time, or both. To reduce the absolute time spent on a wait event, either the number of waits or the average time per wait needs to be reduced. The direction to go can be found by correlating the total time spent for the event per hour with the averages and waits.

Top Segments by Different Criteria

A significant part of the DB time is usually spent reading data from the data files (db file sequential read, db file scattered read) and processing data that already exists in the memory (CPU). The top objects with respect to physical and logical reads are therefore listed in the following diagrams. Statements on these objects usually offer the greatest potential for reducing IO or CPU time. CPU time is also spent on activities other than data access in the main memory ([SAP Note 712624](#)), but data access is usually the dominant part.

Further segment statistics are listed in the following diagrams for information purposes. They do not need to be directly related to a wait event, but can indicate why specific wait events are having a significant impact.

Example: If considerable DB time is spent on "enq: TX – row lock contention", this can have two reasons: a large number of waits or long-running waits. Statements on segments with a large number of waits are a potential root cause. The segments with a large number of waits are therefore listed here. Segments with few, but long-running waits can also be a root cause but there are no segment statistics for the duration of the waits. Segments with the most waits can potentially, but do not have to be the root cause.

Database KPIs

The following section lists performance indicators, for information purposes. When the database time history is being analyzed, these performance indicators can help to pinpoint potential reasons for an increase in the database time. In other words, they support the time-driven analysis.

14.5 Database Parameters for SMP

This section lists parameter alterations to be made on the Oracle database. The recommendations are based mainly on [SAP Note 1888485](#). Parameters that can have multiple values such as "_fix_control" or "event" can appear several times in the tables below. Set these parameters in one step, as described in [SAP Note 1289199](#); [SAP Note 1888485](#) also contains links to information on different parameters.

14.5.1 Database Parameters

The following parameters are currently not set. They need to be added with the recommended value.

Parameters to be added

Parameter	Recommended Value
_in_memory_undo	FALSE
db_create_file_dest	+DATA
db_create_online_log_dest_1	+DATA
db_create_online_log_dest_2	+RECO

The following parameters are set although there is no SAP recommendation given for them. Therefore, they should be deleted if there is no special reason to keep them set explicitly.

Parameters likely to be deleted after checking

Parameter	Current Value
db_recovery_file_dest_size	31457280000
dml_locks	4000
spfile	+SMP_DATA1/smp/spfilesmp.ora_1462002776572

The following parameters need to be checked manually. The prerequisites for if and how they need to be set cannot be checked automatically, or the parameters are not recommended in the Note but set in the system. They are listed here for documentation purposes and further manual checking. The "Set" column shows if the parameter is currently set in the parameter file.

Parameters to be checked manually

Parameter	Current Value	Set
_advanced_index_compression_options	16	Yes
_enable_numa_support	Null	No
_px_numa_support_enabled	Null	No
audit_sys_operations	TRUE	No
control_files	+SMP_DATA1/smp/cntrlsmf.dbf, ...	Yes
control_management_pack_access	DIAGNOSTIC+TUNING	No
db_cache_size	9495904256	Yes
enable_pluggable_database	FALSE	No
heat_map	ON	Yes
inmemory_clause_default	Null	No
inmemory_max_populate_servers	0	No
inmemory_size	0	No
local_listener	Null	No
log_buffer	29581312	No
os_authent_prefix	ops\$	No
os_roles	FALSE	No
parallel_max_servers	40	Yes
pga_aggregate_target	6060559564	Yes
processes	800	Yes
remote_login_passwordfile	EXCLUSIVE	Yes
sessions	1600	Yes
shared_pool_size	4563402752	Yes
sql92_security	FALSE	No
undo_retention	43200	Yes
use_large_pages	TRUE	No

14.6 System Performance

14.6.1 DB Time History

14.6.1.1 Instance: Total

The graph below shows the components of the database time history.

14.6.2 Database Load analysis ST04 Data

14.6.2.1 ST04 Daily Data Total

Number of user calls per day.

Daily average of buffer quality.

Number of logical reads per day.

Number of physical reads per day.

Number of full table scans per day.

Daily average of reads per user call.

15 Database Administration



In the checks performed, no problems regarding the administration of your database were found.

Rating	Check
	Space Statistics
	Freespace in Tablespaces
	brconnect -f check (sapdba -check) schedule
	Multibyte Character Sets

15.1 Mini Checks

This section contains a list of checks executed on the system that do not return the expected value. Due to a number of factors, we cannot rate this check automatically.

Recommendation: For more information about each mini-check, their expected values, potential reasons why the system value is different, and solutions, see [SAP Note 1615380](#).

Name	Value
DDIC statistics creation	2016-04-30 11:05:25
Files with AUTOEXTEND increment > 100 M	5
Fixed objects statistics creation	2016-04-30 11:08:54
Indexes without statistics	1933
Log switches within less than 1 minute	19
Segments not pre-calculated for DBA_SEGMENTS	16263
Snapshot Retention (days)	8
Tables with > 100 partitions	16
Tables without statistics	690

15.2 Space Statistics

15.2.1 Database Growth

The following figure shows the development of the size of your database in GB.

An overview of the freespace development of your database in GB is shown here.

The following table shows you the current size and the monthly growth of your database in GB.

Date	Current Size in GB	Monthly Growth in GB
01.02.2019	379,60	4,60
01.03.2019	384,66	5,06
01.04.2019	387,07	2,41

Date	Current Size in GB	Monthly Growth in GB
01.05.2019	390,79	3,72
01.06.2019	395,89	5,10
01.07.2019	401,24	5,35
01.08.2019	404,12	2,88
01.09.2019	407,13	3,01
01.10.2019	414,56	7,43
01.11.2019	404,57	-9,99
01.12.2019	408,40	3,83

15.2.2 Tablespace Freespace overview

The following table shows the overview of free space for table space.

Tablespace Freespace overview

Tablespace	Max Free Space in KB	Total Free Space in KB	Number of Fragments	Space critical objects	Extent critical objects
PSAPSR3	7030.00	254998.80	2682	0	0
PSAPSR3740X	17000.00	49663.56	46	0	0
PSAPSR3DB	8780.00	47569.89	70	0	0
PSAPSR3USR	8720.00	18445.81	15	0	0
PSAPUNDO	5600.00	12495.91	319	0	0
SYSAUX	7540.00	11773.90	358	0	0
SYSTEM	9190.00	17455.35	58	0	0
PSAPTEMP	0.00	0.00	0	0	0

15.2.3 Top 10 Tables

The following table shows you the top 10 tables based on total size.

Table_name	Total size in GB	Table size in GB	Index size in GB	Lob size in GB	Percent of total Size	Cumulated percentage
ALALERTDB	47.86	32.37	15.49	0.00	11.51	11.51
/BIO/F0SM_STAT	36.55	8.47	28.08	0.00	8.79	20.30

Table_name	Total size in GB	Table size in GB	Index size in GB	Lob size in GB	Percent of total Size	Cumulated percentage
BALDAT	19.19	14.99	4.19	0.00	4.61	24.92
SOFFCONT1	15.30	0.17	0.05	15.08	3.68	28.60
CRMORDERCONT	13.80	0.08	0.04	13.68	3.32	31.92
WBCROSSGT	13.44	3.95	9.49	0.00	3.23	35.15
REPOLOAD	12.50	0.70	0.03	11.77	3.01	38.15
SACONT01	12.49	12.29	0.20	0.00	3.00	41.16
DSVASRESULTSGEN	10.62	8.90	1.72	0.00	2.55	43.71
BC_SLD_CHANGELOG	8.61	7.44	1.14	0.03	2.07	45.78

N.B. If a graph line drops to zero, there is no data available for that date.

15.2.4 Top 10 Segments

The following table shows you the top 10 segments based on size.

Top 10 Segments based on size

Segment name	Segment type	Tablespace	Size inGB	Extents	Table	Column
ALALERTDB	TABLE	PSAPSR3	28.72	964		
SYS_LOB0000074231C00007\$	LOBSEGMENT	PSAPSR3	14.88	738	SOFFCONT1	CLUSTD
SACONT01	TABLE	PSAPSR3	12.29	402		
SYS_LOB0000013477C00006\$	LOBSEGMENT	PSAPSR3	11.79	621	CRMORDERCONT	CLUSTD
BALDAT	TABLE	PSAPSR3	10.15	498		
DSVASRESULTSGEN	TABLE	PSAPSR3	8.90	327		
SYS_LOB0002343045C00013\$	LOBSEGMENT	PSAPSR3740	7.94	352		
ALALERTDB~0	INDEX	PSAPSR3	7.46	394		
BC_SLD_CHANGELOG	TABLE	PSAPSR3DB	7.19	298		
SYS_LOB0002343045C00014\$	LOBSEGMENT	PSAPSR3740	5.99	281		

The following table shows you the top 10 segments based on extents.

Top 10 Segments based on extents

Segment name	Segment type	Tablespace	Size inGB	Extents	Table	Column
ALALERTDB	TABLE	PSAPSR3	28.72	964		
SYS_LOB0000074231C00007\$\$	LOBSEGMENT	PSAPSR3	14.88	738	SOFFCONT1	CLUST D
SYS_LOB0000013477C00006\$\$	LOBSEGMENT	PSAPSR3	11.79	621	CRMORDERCONT	CLUST D
SYS_LOB0000018584C00003\$\$	LOBSEGMENT	PSAPSR3	1.06	526	AGSNOTE_BUFFER	DATA
BALDAT	TABLE	PSAPSR3	10.15	498		
GVD_OBJECT_DEPEN~0	INDEX	PSAPSR3	0.44	413		
SACONT01	TABLE	PSAPSR3	12.29	402		
ALALERTDB~0	INDEX	PSAPSR3	7.46	394		
SYS_LOB0002343045C00013\$\$	LOBSEGMENT	PSAPSR3740	7.94	352		
ALALERTDB~TID	INDEX	PSAPSR3	5.87	334		

The following table shows you the top 10 segments based on monthly growth rate.

Top 10 Segments based on monthly growth rate

Segment name	Segment type	Tablespace	Size inGB	Extents	Table	Column
BALDAT	TABLE	PSAPSR3	14.87	622		
SYS_LOB0002323804C00010\$\$	LOBSEGMENT	PSAPSR3DB	7.41	292	J2EE_CONFIGENTRY	FBLOB
ALALERTDB	TABLE	PSAPSR3	32.37	1073		
SYS_LOB0000013477C00006\$\$	LOBSEGMENT	PSAPSR3	13.62	662	CRMORDERCONT	CLUST D
BALDAT~0	INDEX	PSAPSR3	4.19	342		
/BI0/E0CCMWSMD2	TABLE	PSAPSR3	1.21	271		
/BI0/E0CCMWSMD2~P	INDEX	PSAPSR3	1.21	270		
ALALERTDB~0	INDEX	PSAPSR3	8.73	435		
/BI0/E0CCMWSWD2~P	INDEX	PSAPSR3	0.67	181		
/BI0/E0CCMWSWD2	TABLE	PSAPSR3	0.64	173		

16 Data Volume Management (DVM)



The database size and database growth of your system SMP indicate that no immediate action is required in the area of Data Volume Management.

This report does not have a Data Volume Management (DVM) section focusing on **Deletion and Data Archiving** because the collection of DVM-relevant data has not been activated for your system SMP. See SAP Note [2036442](#) for more information about how to activate the DVM content for service reports. Once the DVM content has been activated, information about the current state of your system SMP regarding Data Volume Management is provided, along with proposals about how to reduce the database size of this system.

As a workaround, the database size and growth per year for your system SMP were checked. Here, we found a database size of 414,36 GB and a database growth of 9,41% per year. These figures indicate that, from a **Deletion and Data Archiving** perspective, no immediate activities are required for your system SMP.

17 SAP NetWeaver Gateway



No major problems were found with the gateway configuration or administration of your SAP Solution Manager system SMP.

Rating	Check
	MetaData Cache Activation
	Logging Configuration
	NetWeaver Gateway Error Logs

Rating	Check
	Cache Cleanup Job

17.1 Gateway Configuration

17.1.1 MetaData Cache Activation

Cache	Activated
Metadata Cache	Yes

The metadata cache is activated in your system as recommended.

17.1.2 Logging Configuration

Logging Use Case	Log Level	Recommended Log Level
Regular processing	Error, Security, Warning	Error, Security, Warning

The gateway logging configuration is set correctly on your system.

17.2 Gateway Administration

17.2.1 Cache Cleanup Job

Jobname	Status
/IWFND/R_SM_CLEANUP	Scheduled

The gateway cache cleanup job is scheduled on your system.

18 UI Technologies Checks



No major problems were found with the UI technology configuration or administration of your SAP Solution Manager system SMP.

Rating	Check
	Fiori Checks for SMP

18.1 Fiori Checks for SMP

Rating	Check
	SAPUI5 Version
	SAP Fiori Cache Buster Activation
	SAPUI5 Application Index
	Fiori Launchpad Configuration

No major problems were found with the SAP Fiori configuration or administration of your SAP Solution Manager system SMP.

18.1.1 SAPUI5 Version

Current SAPUI5 Version Installed
1.52.20

The SAPUI5 library is part of the software component SAP User Interface Technology (or of the UI Add-On for NW AS ABAP 7.31). Updates include better browser support, improved performance, and better supportability, as well as supporting adoption of new SAP products and solutions in addition to fixing issues for known problems.

It is recommended to install the most recent support package stack of UI add-on 1.0 or 2.0 for SAP NetWeaver available. For information about how to update the SAPUI5 version, see SAP Note [2217489](#).

We strongly recommend that you test all of your SAPUI5 applications before upgrading the SAPUI5 version in the production system.

18.1.2 SAP Fiori Cache Buster Activation

You have activated the cache buster mechanism for system SMP because the ICF service /sap/bc/ui2/flp is activated in SICF.

Please note that to use the cache buster mechanism, you need to call the SAP Fiori launchpad with one of the following URLs:

<https://<server>:<port>/sap/bc/ui2/flp/>

<https://<server>:<port>/sap/bc/ui2/flp/index.html>

<https://<server>:<port>/sap/bc/ui2/flp/FioriLaunchpad.html>

You can also maintain a custom URL via an SICF external alias as described here: [Customize the Launchpad URL](#)

Background:

Web browsers store static resources like JavaScript files, stylesheets, and images in the browser cache. When these resources are changed on the server in a software upgrade, you want the browser to load the new resources from the server rather than from the cache, without having to manually clear the browser cache.

Cache buster techniques cause Web browsers to load content from the server rather than from the browser cache when new resources are available on the server.

You can find the latest information about the cache buster for SAP Fiori components in [2043432](#).

18.1.3 SAPUI5 Application Index

Report	Scheduled as background job	Rating
/UI5/APP_INDEX_CALCULATE	Yes	

The SAPUI5 application index is scheduled as a background job as recommended.

19 Database server load from expensive SQL statements - SMP



The SQL statements identified did not lead to performance problems. The load overview is listed in the table below for reference, and further details of the most expensive statements are included at the end of the section.

Load From Expensive Statements

Impact	CPU Load [%]	I/O Load [%]	Elapsed Time [%]
HIGH	18,20	85,81	62,00

The table above shows the cumulative load of the top statements from cache based on elapsed database time. If the database was active for less than one day before the analysis was performed, the information provided may not be entirely accurate.

Note: The overall section rating is linked to the above table rating; the ratings are described in [SAP Note 551646](#).

If the table impact is HIGH, there are SQL statements that cause a significant percentage of the overall load on your SAP system.

If the table impact is MEDIUM, there are SQL statements that cause a significant percentage of the overall load on your SAP system.

If the table impact is LOW, your system SQL statement cache contains no significant problems.

If the table impact is N/A, the cache utilization, system load (dialog steps or total reads) was too low, or some analysis data was unavailable.

The following table lists the load of each SQL statement individually. The load of the statement is evaluated against the total load since database startup. If an object name in this table contains the character "/", it may indicate a join. If such an object is not in the ABAP Dictionary (transaction SE12) with the object name listed, check for each part of the join (items separated by "/").

19.1 Cache Analysis On 06.01.2020

Expensive Statements Overview

Object Name	CPU Load [%]	I/O Load [%]	Elapsed Time [%]	Total Executions	Records Processed
GV\$SORT_SEGMENT	0,86	77,51	42,00	16.318	8
DECLAREJOBINARY_INT	3,10	3,41	6,00	1.954	1.954
HEAT_MAP_STAT\$	3,10	3,41	6,00	8.230.267	8.230.267
V\$FILESTAT	0,00	0,00	3,00	16.318	1.141.331
BEGINDBMS_STATS.GATH	2,52	1,48	3,00	599	599
SEG\$	8,62	0,00	2,00	16.324	2.050.456.205

19.1.1 Access on GV\$SORT_SEGMENT

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	16.318	1.427.097.155	500.450.708	206.888.408	8

```

SELECT
LTRIM (d.tablespace_name) as name, NVL (ddf.BYTES - NVL(u.BYTES, 0), 0) as
freeSp, DECODE (d.CONTENTS, 'UNDO', NVL (TRUNC ((ddf.BYTES - NVL (u.BYTES,
0))/(ddf.bytes)*100,3),0), NVL (TRUNC (dfs.BYTES / ddf.BYTES * 100,3), 0)) as
avPct, NVL (dfs.antall, 0) as chunks, ddf.autoextend_flag as autoext, NVL
(TRUNC ((ddf.bytes)), 0) as maxSize, NVL (TRUNC ((ddf.BYTES - NVL(dfs.BYTES,
0))/(ddf.bytes)*100,3),0) as maxPct
FROMdba_tablespaces d, (SELECT tablespace_name, SUM (BYTES) BYTES, MAX
(BYTES) maxbytes, COUNT (1) antall
FROM
dba_free_space
GROUP BY
tablespace_name) dfs, (SELECT tablespace_name, SUM (BYTES) BYTES, SUM
(maxbytes) maxbytes, COUNT (1) antall, DECODE (MAX (autoextensible), 'YES',
'Y', 'N') autoextend_flag
FROMdba_data_files GROUP BY tablespace_name) ddf, (SELECT tablespace_name,
SUM (BYTES) BYTES
FROM
dba_undo_extents
WHERE
status <> ('EXPIRED') GROUP BY tablespace_name) u
WHERE
d.tablespace_name = ddf.tablespace_name(+) AND d.tablespace_name =
dfs.tablespace_name(+) AND d.tablespace_name = u.tablespace_name(+) AND NOT
(d.extent_management LIKE 'LOCAL' AND d.CONTENTS LIKE 'TEMPORARY')UNION ALL
SELECT LTRIM(d.tablespace_name) as name, NVL (TRUNC(ddf.BYTES), 0) - NVL
(TRUNC (dfs.BYTES), 0) as freeSp, 100 - NVL (TRUNC (dfs.BYTES / ddf.BYTES *
100), 0) as avPct, DECODE (NVL (TRUNC (dfs.BYTES / ddf.BYTES * 100), 0),0,
1,100, 0) as chunks, ddf.autoextend_flag as autoext, NVL (TRUNC
((ddf.bytes)),0) maxSize, NVL (TRUNC (NVL (dfs.BYTES, 0) / (ddf.bytes)*
100,3),0) as maxPct
FROM
dba_tablespaces d, (SELECT tablespace_name, SUM (BYTES) BYTES, SUM (maxbytes)
maxbytes, COUNT (1) antall, DECODE (MAX (autoextensible), 'YES', 'Y', 'N')
autoextend_flag
FROM
dba_temp_files
GROUP BY
tablespace_name) ddf, (SELECT ss.tablespace_name, SUM ((ss.used_blocks *
ts.BLOCKSIZE)) BYTES, MAX ((ss.used_blocks * ts.BLOCKSIZE)) maxbytes, COUNT
(1) antall
FROM
gv$sort_segment ss, SYS.ts$ tsWHERE ss.tablespace_name = ts.NAME GROUP BY
ss.tablespace_name)dfs
WHERE
d.tablespace_name = ddf.tablespace_name(+) AND d.tablespace_name =
dfs.tablespace_name(+) AND d.extent_management LI
KE 'LOCAL' AND d.CONTENTS LIKE 'TEMPORARY'
ORDER BY
1

```

19.1.2 Access on DECLAREJOBINARY_INT

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	1.954	62.828.562	67.290.810	743.540.684	1.954

```
DECLARE job BINARY_INTEGER := :job; next_date TIMESTAMP WITH TIME ZONE := :mydate; broken BOOLEAN := FALSE; job_name VARCHAR2(30) := :job_name; job_subname VARCHAR2(30) := :job_subname; job_owner VARCHAR2(30) := :job_owner; job_start TIMESTAMP WITH TIME ZONE := :job_start; job_scheduled_start TIMESTAMP WITH TIME ZONE := :job_scheduled_start; window_start TIMESTAMP WITH TIME ZONE := :window_start; window_end TIMESTAMP WITH TIME ZONE := :window_end; chain_id VARCHAR2(14) := :chainid; credential_owner varchar2(30) := :credown; credential_name varchar2(30) := :crednam; destination_owner varchar2(30) := :destown; destination_name varchar2(30) := :destnam; job_dest_id varchar2(14) := :jdestid; log_id number := :log_id; BEGIN begin dbms_ilm.flush_all_segments; end; :mydate := next_date; IF broken THEN :b := 1; ELSE :b := 0; END IF; END;
```

SQL Scripts

This statement is an expensive SQL script. Because the contents of such a script are not visible in the SQL cache, we cannot analyze this statement in detail.

Recommendation: Check if:

- The script has to be run at all.
- The script can be run less frequently.
- The script can be tuned so that it consumes less database resources.

19.1.3 Access on HEAT_MAP_STAT\$

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	8.230.267	62.828.552	66.392.647	743.538.569	8.230.267

```
merge into heat_map_stat$ D using (select :1 "OBJ#", :2 "DATAOBJ#", :3 "TS#", sysdate "TRACK_TIME", :3 "SEGMENT_ACCESS" FROM dual) S on (D.OBJ#=S.OBJ# and trunc(D.TRACK_TIME)=trunc(S.TRACK_TIME)) when matched then update set D.SEGMENT_ACCESS=(D.SEGMENT_ACCESS + S.SEGMENT_ACCESS - bitand(D.SEGMENT_ACCESS, S.SEGMENT_ACCESS)) when not matched then insert (D.OBJ#,D.DATAOBJ#,D.TS#,D.TRACK_TIME, D.SEGMENT_ACCESS) values (S.OBJ#,S.DATAOBJ#,S.TS#,S.TRACK_TIME,S.SEGMENT_ACCESS)
```

SQL Scripts

This statement is an expensive SQL script. Because the contents of such a script are not visible in the SQL cache, we cannot analyze this statement in detail.

Recommendation: Check if:

- The script has to be run at all.
- The script can be run less frequently.
- The script can be tuned so that it consumes less database resources.

19.1.4 Access on V\$FILESTAT

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	16.318	18	36.673.126	363	1.141.331

```
SELECT
name,phyrds,pd.phys_reads,phywrts,pd.phys_wrts
FROM(SELECT (SUM(phyrds)) phys_reads, (SUM(phywrts)) phys_wrts
FROM
v$filestat) pd, v$datafile df, v$filestat fs
WHERE
df.file# = fs.file#
```

19.1.5 Access on BEGINDBMS_STATS.GATH

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	599	27.201.314	30.068.680	604.355.899	599

```
BEGIN DBMS_STATS.GATHER_TABLE_STATS (OWNNAME => :o, TABNAME => :t,
ESTIMATE_PERCENT => :e, METHOD_OPT => :m, DEGREE => NULL, GRANULARITY =>
'ALL', CASCADE => TRUE, NO_INVALIDATE => FALSE); END;
```

SQL Scripts

This statement is an expensive SQL script. Because the contents of such a script are not visible in the SQL cache, we cannot analyze this statement in detail.

Recommendation: Check if:

- The script has to be run at all.
- The script can be run less frequently.
- The script can be tuned so that it consumes less database resources.

19.1.6 Access on SEG\$

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	16.324	4.419	18.811.058	2.064.299.561	2.050.456.205

```
SELECT
file#, block#, type#, nvl(spare1,0), hwmincr, cachehint, nvl(scanhint,0)
FROM
seg$
WHERE
ts# = :1
```

Program Name	Line	Created By	Last Changed By	Last Changed On
LSKOMU21	202	SAP	SAP	12.06.2018

```

000190 could_not_send_t100_message = 2
000191 undetermined = 3
000192 others = 4.
000193
000194 if sy-subrc <> 0.
000195 exit. "error reporting failure
000196 endif.
000197 exit.
000198 * exit.
000199 endif.
000200 *vv added next 10 lines
000201 * Get rid of the tablespaces that shouldn't be monitored.
000202 select category
000203 into s_tsp_space_info-tsp_name
000204 from soramon
000205 where addtl_info = flag_not_monitored.
000206 delete table t_tsp_space_info
000207 with table key tsp_name = s_tsp_space_info-tsp_name.
000208 * TODO: actually delete MTEs mentioned in SORAMON incase the tree
000209 * already exists.
000210 endselect.
000211
000212 * Get space information for each datafile.
000213 call function 'SDO0_GET_DF_SPACE_INFO'
000214 tables
000215 t_df_space_info = t_df_space_info
000216 exceptions
000217 no_row_found = 1

```

19.2 Historical Analysis Between 30.12.2019 05.01.2020

Expensive Statements Overview

Object Name	CPU Load [%]	I/O Load [%]	Elapsed Time [%]	Total Executions	Records Processed
/UIF/LREPDTEXT	3,40	0,00	3,00	15.808.824	15.808.824
BALHDR	0,53	0,89	3,00	153	26.040

19.2.1 Access on /UIF/LREPDTEXT

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	15.808.824	903	3.974.444	148.997.876	15.808.824

```

INSERT
INTO "/UIF/LREPDTEXT"
("LANGU","COUNTRY","VARIANT","TEXT_ID","TEXT_TYPE","SEARCH_TEXT","TEXT","TEXT
_ID_HASH","VARIANT_HASH","TROBJNAME","HASH") VALUES
(:A0,:A1,:A2,:A3,:A4,:A5,:A6,:A7,:A8,:A9,:A10) RETURNING "VARIANT",
"TEXT_ID", "TEXT" INTO :A11,:A12,:A13
Execution Plan From: DBA_HIST_SQL_PLAN sql_id: 4k1sn8bwskcz9
INSERT STATEMENT plan line: 0 samples: 0 percent: 0
Estimated Costs= 1 Estimated Rows= 0 Optimizer: ALL_ROWS
1 LOAD TABLE CONVENTIONAL /UIF/LREPDTEXT
plan line: 1 samples: 0 percent: 0

```

Program Name	Line	Created By	Last Changed By	Last Changed On
/UIF/CL_LREP_DB_ACCESS=====CM00E	111	SAP	SAP	10.10.2019

```

000099 textid = /uif/cx_lrep_core=>insert_to_db_failed.
000100 endif.
000101 endif.
000102 if not lt_d_ltext is initial.
000103 modify /uif/lrepdltxt from table lt_d_ltext.
000104 if sy-subrc ne 0.
000105 raise exception type /uif/cx_lrep_core
000106 exporting
000107 textid = /uif/cx_lrep_core=>insert_to_db_failed.
000108 endif.
000109 endif.
000110 if not lt_d_text is initial.
000111 modify /uif/lrepdtext from table lt_d_text.
000112 if sy-subrc ne 0.
000113 raise exception type /uif/cx_lrep_core
000114 exporting
000115 textid = /uif/cx_lrep_core=>insert_to_db_failed.
000116 endif.
000117 endif.
000118
000119 catch cx_sy_open_sql_db into lx_error.
000120
000121 raise exception type /uif/cx_lrep_root
000122 exporting
000123 previous = lx_error.

```

19.2.2 Access on BALHDR

Load Statistics Total

Analysis Date	Total Executions	Total Physical Reads	Elapsed Time (ms)	Total Buffer Gets	Records Processed
06.01.2020	153	1.960.751	3.798.461	23.104.527	26.040

```

SELECT
/*+ FIRST_ROWS(0) */
"MANDANT","LOGNUMBER","OBJECT","SUBOBJECT","EXTNUMBER","ALDATE","ALTIME","ALU
SER","ALTCODE","ALPROG","ALMODE","ALTEXT","USEREXITP","USEREXITF","PROBCLASS"
,"ALDATE_DEL","DEL_BEFORE","ALSTATE","USEREXITT","ALCHDATE","ALCHTIME","ALCHU
SER","LOG_HANDLE","TABNAME","MSG_CNT_AL","MSG_CNT_A","MSG_CNT_E","MSG_CNT_W",

```

```

"MSG_CNT_I","MSG_CNT_S","LAST_MSGNR","TIM_STMP","DB_VERSION","MSG_CNT_P1","MSG
G_CNT_P2","MSG_CNT_P3","MSG_CNT_P4","CLIENT_CRE","CHAR_SIZE","_DATAAGING"
FROM
"BALHDR"
WHERE
"MANDANT"=:A0 AND "OBJECT"=:A1 AND "ALDATE"<=:A2
Execution Plan From: DBA_HIST_SQL_PLAN sql_id: dac8sp0yb3t1r
SELECT STATEMENT
plan line: 0 samples: 0 percent: 0 Estimated Costs= 1,305 Estimated Rows= 0
Optimizer: HINT: FIRST_ROWS
9 TABLE ACCESS BY INDEX ROWID BATCHED BALHDR
plan line: 1 samples: 0 percent: 0
Estimated Costs= 1,305 Estimated Rows= 1,047
Estim. Bytes: 298,395
Estim. CPU-Costs = 263,453,578 Estim. IO-Costs = 1,295
8 BITMAP CONVERSION TO ROWIDS
plan line: 2 samples: 0 percent: 0
7 BITMAP AND
plan line: 3 samples: 0 percent: 0
3 BITMAP CONVERSION FROM ROWIDS
plan line: 4 samples: 0 percent: 0
2 SORT ORDER BY
plan line: 5 samples: 0 percent: 0
Estim. Temp. Space: 1,024,000
1 INDEX RANGE SCAN BALHDR~1
plan line: 6 samples: 0 percent: 0
Estimated Costs= 70 Estimated Rows= 24,872
Search Columns: 1
Estim. CPU-Costs = 3,041,588 Estim. IO-Costs = 69
6 BITMAP CONVERSION FROM ROWIDS
plan line: 7 samples: 0 percent: 0
5 SORT ORDER BY
plan line: 8 samples: 0 percent: 0
Estim. Temp. Space: 2,229,000
4 INDEX RANGE SCAN BALHDR~4
plan line: 9 samples: 0 percent: 0
Estimated Costs= 266 Estimated Rows= 24,872
Search Columns: 1
Estim. CPU-Costs = 2,780,023 Estim. IO-Costs = 266

```

Program Name	Line	Created By	Last Changed By	Last Changed On
CL_BAL_DB_SEARCH=====CM006	27	SAP	SAP	12.06.2018

```

000015 endif.
000016
000017 clear ef_no_more_data.
000018
000019 if ms_query_params-package_size = 0.
000020
000021 call method open_cursor.
000022
000023 endif.
000024
000025 cl_abap_stack_temperature=>set_temperature( m_data_temperature ).
000026
000027 fetch next cursor m_cursor
000028 into corresponding fields of table et_log_header

```

```
000029 package size ms_query_params-package_size.  
000030  
000031 if sy-subrc <> 0 or  
000032 ms_query_params-package_size = 0.  
000033 * all data fetched  
000034 close cursor m_cursor.  
000035 ef_no_more_data = 'X'.  
000036 endif.  
000037  
000038 if m_optimize = 'X'.  
000039 * We read by key in hot storage  
000040 * The values which we got from DB will be removed from the  
000041 * list of keys (<lt_for_all_entries>) so that we know we don't have
```

20 Trend Analysis

This section contains the trend analysis for key performance indicators (KPIs). Diagrams are built weekly once the EarlyWatch Alert service is activated.

In this section, a "week" is from Monday to Sunday. The date displayed is the Sunday of the week.

20.1 System Activity

The following diagrams show the system activity over time.

The "Transaction Activity" diagram below depicts transaction activity in the system over time.

- **Total Activity:** Transaction steps performed each week (in thousands)
- **Dialog Activity:** Transaction steps performed in dialog task each week (in thousands)
- **Peak Activity:** Transaction steps (in thousands) during the peak hour; this peak hour is calculated as the hour with the maximum dialog activity in the ST03 time profile divided by 5 working days per week.
(Peak Activity is absent if "Activity Data" is taken from ST03 data directly).

The "User Activity" diagram below shows the user activity on the system over time.

- **Total Users:** Total users that logged on in one week.
- **Active Users:** Users who performed more than 400 transaction steps in one week.

20.2 System Operation

The following diagram or table shows important KPIs for system operation.

20.3 Hardware Capacity

Report time frame: Service data was collected starting at 06.01.2020 04:06:34. This took 41 minutes.
You can see sample SAP EarlyWatch Alert reports on SAP Support Portal at [SAP EarlyWatch Alert](#)
-> Sample Reports.
For general information about SAP EarlyWatch Alert, see [SAP Note 1257308](#).

About System And Solution Manager

System No. Of Target System	310721816
Solution Manager System	SMP
Solution Manager Version	SOLUTION MANAGER 7.2
Service Tool	720 SP16