

IGS SERVER DOWN OR
COMMUNICATION
ERROR

Service Report

EarlyWatch ® Alert

Confidential

SAP System ID PE4
Product SAP S/4HANA 2023

Status Productive
DB System SAP HANA Database 2.00.077.00
Customer Bell Schweiz AG
Basel
Switzerland

Processed on SAP Solution Manager SPA
Release SOLUTION MANAGER 7.2
Service Tool 720 SP25
Service Content 02.09.2024

Analysis from 02.09.2024 Session No. 0010000024760
Until 08.09.2024 Installation No. 0020256234
Customer No. 0000010364

Authorized for SAP employees delivering SAP Services and Support, authorized partners, and customer employees. Please forward to authorized recipients only.

Alert Overview

	SAP HANA network settings for System Replication is insecure.	Bell Schweiz AG	02.09.2024 - 08.09.2024
	SAP HANA database: User SYSTEM is active and valid.		
	Users with critical authorizations, which allow to do anything in client 000		
	Users with critical authorizations, which allow to do anything in other client(s) than 000		
	Users with critical authorizations, which should not be used in production in other client(s) than 000		
	Critical standard users have default passwords in other client(s) than 000		
	User SAP* does not exists in other client(s) than 000, allowing critical privilege		
	We found more than 30 ABAP dumps in your system.		
	ABAP number ranges are used significantly.		
	SAP HANA database: Parameters are not set in accordance with the recommendation.		
	SAP HANA database: Memory consumption of tables exceeds 50% of the system's memory.		
	Expensive SQL statement causing unnecessary load identified.		
	Gateway Access Control List reg_info is not effective.		
	SAP HANA database: Users with critical privilege DATA ADMIN.		
	SAP HANA database: Recommended Audit configuration is not applied.		
	SAP HANA database: System Recommendations are not used or outdated.		
	RFC Gateway default security behaviour is not activated. System may be at risk, when ACLs secinfo or reginfo are missing.		
	Standard users have default passwords in client 000		

To provide feedback on the alerts, please use the 'Hide and Snooze Alert' functionality in the [Solution Finder](#). You can hide alerts if you consider them irrelevant or snooze them if the recommendations are already in implementation. The blog [Hide and Snooze SAP EarlyWatch Alerts](#) explains how to use it and the required authorization "Manage Alert(s)" in SAP EarlyWatch Alert.

Note: If you send SAP EarlyWatch Alert data to SAP, this report can be viewed in "[SAP for Me](#)". One of the benefits of using [SAP EarlyWatch Alert Workspace](#) is receiving proactive alerts that are calculated in the workspace only and are not available in a Solution Manager. Do not miss any important findings: subscribe to notifications with just a few clicks on [Notification Activation](#). For detailed configuration options, read this [Best Practices](#) blog.

How to get access to the SAP EarlyWatch Alert apps is explained in [SAP Note 2520319](#). The following link to the [SAP EarlyWatch Alert Reports](#) app always opens up the latest report for this system. Similarly, this link to the [SAP EarlyWatch Alert Dashboard](#) shows you the analytical dashboard for this system. Specific links to analytical detail pages in [SAP EarlyWatch Alert Workspace](#) are included in the respective sections in this report.

The [EWA Status App](#) is your entry point for analysis if you are missing the current data in EarlyWatch Alert apps.

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

Guided Self Service	FAQ SAP Note
SQL Statement Tuning	1601951

For more information about Guided Self-Services, see [SAP Enterprise Support Academy](#). Academy - Check Overview

Topic Rating	Topic	Subtopic Rating	Subtopic
	Software Configuration for PE4		
			SAP Application Release - Maintenance Phases
			Maintenance and Update Strategy for SAP Fiori Front-End Server
			Security Risk Due to Outdated Support Packages
			Database - Maintenance Phases
			Operating System(s) - Maintenance Phases
			SAP Kernel Release
	Performance Overview PE4		
	Workload Distribution PE4		
			Workload by Application Module
			DB Load Profile
	SAP System Operating PE4		
			Availability based on Collector Protocols
			Program Errors (ABAP Dumps)



Topic Rating	Topic	Subtopic Rating	Subtopic
		✓	Update Errors
		!	Table Reorganization
		!	Critical Number Ranges
		!	Number Range Trace
✓	Hardware Capacity		
!	BW Checks for PE4		
		✓	BW Administration & Design
		✓	BW Reporting & Planning
		!	BW Warehouse Management
!	Security		
		!	System Recommendations (HANA)
		✓	Maintenance Status of current SAP HANA Database Revision
		!	SAP HANA System Privilege DATA ADMIN
		✓	SAP HANA Password Policy
		!	SAP HANA Audit Trail
		✓	SAP HANA SQL Trace Level
		✓	SAP HANA Network Settings for Internal Services
		!	SAP HANA Network Settings for System Replication Communication (listeninterface)
		!	Activation Status and Validity of User SYSTEM
		✓	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
		!	RFC Gateway Security
		✓	Message Server Security
		!	Critical authorizations, which allow to do anything
		!	Critical authorizations, which should not be used in production
		!	Critical authorizations, which should only see very limited use in production
!	Software Change and Transport Management of PE4		
		!	Number of Changes
		!	Emergency Changes
		✓	Failed Changes
!	SAP HANA Database P4H		
		!	SAP HANA Stability and Alerts
		!	SAP HANA Database Configuration
		!	SAP HANA Resource Consumption

Topic Rating	Topic	Subtopic Rating	Subtopic
		✓	SAP HANA Workload and Performance
		✓	Size and Growth
		⚠	Administration
⚠	SAP NetWeaver Gateway		
		✓	MetaData Cache Activation
		✓	Logging Configuration
		⚠	Gateway Error Logs
		⚠	Important Periodic Jobs
⚠	Fiori Checks for PE4		
		✓	SAP Fiori Cache Buster Activation
		✓	HTTP/2 Support
		✓	SAP Fiori Launchpad Performance - Home Page Mode
		⚠	SAP Fiori Launchpad - Spaces and Pages adoption
		?	Activated but unused ICF services in UI5 apps

The check overview includes checks executed with a green result, which do not appear in the report.

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 EarlyWatch Alert service, create a customer case under component SV-SMG-SER-EWA.

Note: If you require any assistance in resolving concerns about your system performance or if you require a technical analysis of other aspects of your system as highlighted in the report, please follow the instructions below:

Create a case using the [Get Support application in SAP for Me \(KBA 1296527 \)](#). Contact one of the [administrators](#) in your company if your S-user ID does not have the required authorizations.

Within case creation, select the system. From the menu, choose:

- *Product* : Customer Project-Based Solution
- *Component* : insert required component (for example, if you wish to open a case on the topic 'performance', please use component SV-PERF.)

If you need assistance, contact your local Customer Interaction Center (CIC) or SAP representative. Please refer to [SAP Note 560499](#) . For information about how to set the appropriate priority level, see [SAP Note 67739](#) .

1.1 Performance Indicators for PE4

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

Area	Indicators	Value	Trend
System Performance	Active Users (>400 steps)	1149	↗
	Fiori Users	151	↗
	Avg. Availability per Week	100 %	↗
	Avg. Response Time in Dialog Task	951 ms	↗
	Max. Dialog Steps per Hour	41488	↗
	Avg. Response Time at Peak Dialog Hour	907 ms	↘
	Avg. Response Time in RFC Task	636 ms	↘
	Max. Number of RFCs per Hour	312760	↗
	Avg. RFC Response Time at Peak Hour	653 ms	↗
Hardware Capacity	Max. CPU Utilization on DB Server	22 %	↘
	Max. CPU Utilization on Appl. Server	27 %	↘
Database Performance	Avg. DB Request Time in Dialog Task	351 ms	↘

Area	Indicators	Value	Trend
Database Space Management	Avg. DB Request Time for RFC	141 ms	↗
	Avg. DB Request Time in Update Task	53 ms	↗
	DB Size	2061.44 GB	↗
	DB Growth Last Month	29.03 GB	↘

PE4~ABAP	Ixbell121	vpe4ap5_PE4_00	vpe4ap5		
PE4~ABAP	Ixbell105	vpe4ci_PE4_00	vpe4ci		

EarlyWatch Alert
DB Servers

Bell Schweiz AG

02.09.2024 - 08.09.2024

Related System	Host	Logical Host (SAPDBHOST)
PE4~ABAP	Ixbell106	Ixbell106

Components

2.1 Products and Components in current Landscape

Related System	Component	Host	Instance Name	Logical Host
Product	ABAP SCS		_PE4_	

System	SAP Product	Product Version
PE4~ABAP	SAP S/4HANA	2023

Main Instances

Host Overview

Related System	Host	Hardware Manufacturer	Model	CPU Type	CPU MHz	Virtualization	Main Instance			
							Operating System	CPUUs	Cores	Memory in MB
SAP Fiori Add-Ons	Ixbell105	VMware,	VMware	Xeon	2600	VMWARE	SUSE Linux	18		96300
SAP Fiori Add-On	Ixbell105	Virtual Platform	Platinum 8358			SAP Fiori Add-On	Enterprise Server 15 (x86_64)			
SAP Fiori FES FOR S4HANA	Ixbell106	VMware, SAP Fiori FOR S4HANA Inc.	VMware7, Xeon Platinum 8260L	2400	2023	VMWARE	SUSE Linux Enterprise Server 15 (x86_64)	96	96	3527096
Databases	Ixbell110	VMware, Inc.	VMware	Xeon	2400	VMWARE	SUSE Linux	20		96300
Related System	Ixbell110	Virtual Platform	Platinum 8260L			Database System	Enterprise Server 15 (x86_64)		DB ID	
PE4~ABAP	Ixbell110	VMware, Inc.	VMware	SAP HANA Database	2400	VMWARE	2.0 SUSE Linux	18	P4H	94254
			Virtual Platform	Platinum 8260L			Enterprise Server 15 (x86_64)			
2.2 Servers in current Landscape	Ixbell121	VMware, Inc.	VMware	Xeon	2400	VMWARE	SUSE Linux Enterprise Server 15 (x86_64)	18		94254
SAP Application Servers		Virtual Platform	Platinum 8260L							

System	Host	Instance Name	Logical Host	ABAP	JAVA
PE4~ABAP	Ixbell110	vpe4ap1_PE4_00	vpe4ap1	✓	

Transport Track	Position	System Role	System ID	Installation Number	System Number	EWA Dashboard Link
DE4PE4	1	Development	DE4	0020256234		
DE4PE4	2	Test	QE4	0020256234		
DE4PE4	3	Production	PE4	0020256234	000000000800470478	Link
DE9QE9	1	Development	DE9	0020256234		
DE9QE9	2	Quality-1	QE9	0020256234		

The current system is PE4

Note: only real systems are considered, virtual systems are excluded.

* the system role is based on the expectation of 2 - 4 systems in the longest transport tracks being development, test, pre-production and production system with test & pre-production system being optional. All systems on parallel, but shorter tracks, are considered quality systems.

** the system number and link to the SAP EarlyWatch Alert Dashboard can only be determined for systems sending data to SAP.

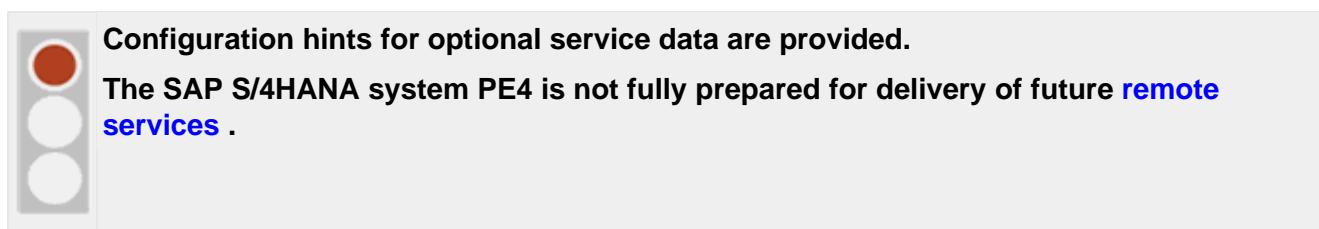


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Landscape

6/180

3 Service Data Quality and Service Readiness



Rating	Check Performed
✓	Sending EarlyWatch Alert of PE4 to SAP Backbone
✓	Configuring PE4 for SAP Note Assistant
◆	Service Data Quality
✗	Service Preparation of PE4

3.1 Sending EarlyWatch Alert of PE4 to SAP Backbone

●●●	System PE4 is prepared for SAP Support Backbone update sending EWA data on HTTPS through Solution Manager 7.2 SPA
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All connections to SAP Support Backbone use https protocol only. For a how to, refer to [Connectivity to SAP](#).

The following table shows the latest data transmissions for system PE4:

Latest Service Data for System PE4 Sent to SAP

Date (collected)	System	Sends EWA?	Kernel	Kernel	ST-PI	ST-PI	Destination	User	Ready for 2020	Date (last sent)	Dest. Functional?
09.09.2024	Solution Manager 7.2 SPA	yes	753_REL 1100	✓	740 27	✓	HTTPS-> SAP	S-user	✓	09.09.2024	✓

3.1.1 Configuring PE4 for SAP Note Assistant

Configuration and Usage of Digitally Signed SAP Notes

Type	Finding	Further Information
!	SNOTE is configured to connect with HTTPS to SAP using destination SAP-SUPPORT_PORTAL to SAP's Service market place and destination SAP-SUPPORT_NOTE_DOWNLOAD to SAP's File content management system	Guided Answer 'Options for Downloading Digitally Signed SAP Notes'

3.2 Service Data Quality

The service data is collected by the Service Data Control Center (SDCCN) or read from the Solution Manager's BW or Configuration and Change Database (CCDB).

Recommendation: To resolve issues with the service data quality, follow the hints and SAP Notes provided below.

3.2.1 Quality of Service Data in Solution Manager Diagnostics - BW

Prio.	Report Area affected	Details and Related Infocube	SAP Note
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Prio.	Report Area affected	Details and Related Infocube	SAP Note
!	Workload of ABAP System PE4	No performance data is returned from BW InfoCube. Infocube: 0CCMSMTPH used in section 'Workload Overview PE4'	1840395

Legend for 'Priority' Column Above

Prio.	Explanation: Impact of Missing or Erroneous Data
!	An optional check was skipped.

3.3 Service Preparation of PE4

Rating	Check Performed
!	Service Preparation Check (RTCCTOOL)
!	Service Data Control Center of PE4
✓	Hardware Utilization Data

In preparation for SAP services, ensure that connections, collectors, and service tools are up to date. These functionalities are explained in SAP Notes [91488](#) and [2253047](#).

3.3.1 Service Preparation Check (RTCCTOOL)

Before we can ship any services, the latest version of the SAP Service tools must be implemented in your system.

Report RTCCTOOL was last run on 09.09.2024. During the check, the tool detected issues for which a RED rating was set.

Overall Status	SAP Note	Topic	Tool Status	Manual Status
!	3300187	SAP note 3300187 for DVM	!	◆
!	69455	Addon ST-A/PI 01W_731	!	◆
!	69455	Proc. after addon impl.	!	◆
!	539977	ST-PI 740 Support Package 27	!	◆
✓	69455	Switch on digital content verification	✓	◆
✓	69455	Allow Online data collectors	✓	◆
✓	539977	Addon ST-PI 740	✓	◆
✓	1985402	Note 1985402 datacoll. for HANA	✓	◆
✓	12103	Collectors and TCOLL	✓	✓

Recommendation: [SAP note 3300187 for DVM](#) `Dumps CALL_FUNCTION_CONFLICT LENG in /SSF/DLBROWSER - on ST-PI >= 740 SP21 and ST-A/PI <= 01V* SP03` Please implement coding corrections from note 3300187 using SNOTE
[Addon ST-A/PI 01W_731](#) "Servicetools for Applications Plug-In" for NetWeaver as of 7.31 [your current version is one or two levels lower than the latest available] From <http://support.sap.com/supporttools>
->ST-A/PI->Installations&Upgrades download the installation ST-A/PI 01W_731. Upload to tx SAINT and install as per note 69455. Then restart report RTCCTOOL and choose 'List->Refresh from SAPNet'.
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.
ST-PI 740 Support Package 27 Addon supportpackage level 27 for ST-PI 740 for basis as of 7.40 [your current patch is one to four levels lower than the latest available] Open <http://support.sap.com/supporttools> ->ST-PI Supportpck.-> ST-PI 740. Add patch SAPK-74027INSTPI (and predecessors if not yet implemented) t download basket. Release basket via Maintenance optimizer. Upload from frontend into transaction SPAM, define a queue and import the queue.

3.3.2 SDCC Destination Table

The table below summarizes the destinations configured in Service Data Control Center.

Finding	Details	Rating
There exists RFC destination SDCC_OSS to SAP Support Backbone.	Calls on RFC protocol to SAP Support Backbone are no more supported. You may delete destination SDCC_OSS	!
There is no destination to SAP Support Backbone.	The connection to SAP can be established through a Solution Manager or Focused Run.	I
On this SAP S/4HANA system a Source System for Service Definitions is defined.	The Solution Manager is defined as Source System for Service Definitions. Find information about the Source System for Service Definitions flag in SAP Note SAP Note 1075827 .	✓
A Solution Manager ('BACK') destination exists.	This destination can establish a connection to SAP Support Backbone.	✓

Recommendation: Resolve the issue reported in the table.

4 Software Configuration for PE4



We did not find any critical issues concerning the software configuration on your current 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 S/4HANA 2023	31.12.2030	✓

Rating Legend

Rating	Description
✓	Mainstream / Extended maintenance offered by SAP is available for the next 18 months or longer.
⚠	Mainstream / Extended maintenance offered by SAP will end in 6 to 18 months.
✗	Mainstream / Extended maintenance offered by SAP has expired or will expire in the next 6 months.

Your main product version runs under SAP mainstream maintenance until 31.12.2030.

Please note that this check, if created on your on-premise SAP Solution Manager, does not take account of extended maintenance options. In this case, **your main product version is checked for SAP mainstream maintenance only**, which might lead to invalid ratings, especially for SAP S/4HANA 1709, SAP S/4HANA 1809, and SAP S/4HANA 1909.

A complete verification, including also your individual extended maintenance contracts, is available only on your EWA Workspace account at [SAP ONE Support Launchpad](#) or [SAP for Me](#) respectively.

For general information about EarlyWatch Alert Workspace see [How to access the SAP EarlyWatch Alert apps in the SAP ONE Support Launchpad](#).

4.2 Maintenance and Update Strategy for SAP Fiori Front-End Server

4.2.1 SAP Fiori Front-End Server Version

Software Product	SAP_UI Release	End of Maintenance	Rating
SAP Fiori FES 2023 for S/4HANA	758	31.12.2030	✓

Your version of the SAP Fiori Front-End Server (SAP_UI) is still in maintenance by SAP. For further information on the SAP Fiori Front-End Server maintenance and upgrade strategy, refer to SAP Note [2217489](#).

4.2.2 SAPUI5 Version

Current SAPUI5 Version Installed	Rating
1.120.0	✓

Your SAPUI5 Library version is up to date as recommended. The planned end of maintenance for your SAPUI5 Library version is **31.12.2030**.

For information about how to update the SAPUI5 version, see SAP Note [2217489](#).

Recommendation: Use the [SAP Maintenance Planner](#) to plan updates and upgrades. It is strongly recommended that you test all of your SAPUI5 applications before upgrading the SAPUI5 version in the productive system.

4.3 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
BTCMAN	52	0			
EA-DFPS	808	1		1 SAPK-80801INEADFPS	EA-Defense Forces & Public Security
EA-PS	808	1		1 SAPK-80801INEAPS	SAP R/3 Enterprise Public Services
FI-CAX	808	1		1 SAPK-80801INFICAX	FI-CAX: Extended FI-CA
GBX01HR5	605	27	31	SAPK-60527INGBX01HR5	GBX01HR5
HOME	DEV	0			
IBPIECC	110	28	30	SAPK-11028INIBPIECC	SCM IBP Integration for ECC
IBPIFND	110	28	30	SAPK-11028INIBPIFND	SCM IBP Integration Foundation
IS-OIL	808	1		1 SAPK-80801INISOIL	SAP for Oil & Gas
IS-PRA	808	1		1 SAPK-80801INISPRA	IS-PRA
IS-PS-CA	808	1		1 SAPK-80801INISPSCA	IS-Public Sector Contract Accounting
IS-UT	808	1		1 SAPK-80801INISUT	IS-UT
LOCAL	DEV	0			
MDG_APPL	808	1		1 SAPK-80801INMDGAPPL	MDG Applications
MDG_FND	808	1		1 SAPK-80801INMDGFND	MDG Foundation
PBSANAPL	H71_2023	0			
PBSCCO	H71_2023	0			
PBSCFI	H71_2023	0			
PBSCMM	H71_2023	0			
PBSCPP	H71_2023	0			
PBSCQM	H71_2023	0			
PBSCSD	H71_2023	0			
PBSNSP	H71_2023	0			
PBSORDER	H71_2023	0			
PBSUTIL	H71_2023	1		SAPK-H7101INPBSUTIL	
PERSONAS	300	18	18	SAPK-30018INPERSONAS	SAP Screen Personas
S4CEXT	108	1		1 SAPK-10801INS4CEXT	S4cext
S4CORE	108	1		1 SAPK-10801INS4CORE	S4core
S4COREOP	108	1		1 SAPK-10801INS4COREOP	S/4HANA, On-Premise only parts.
S4DEPREC	108	1		1 SAPK-10801INS4DEPREC	S/4HANA, deprecation parts.
S4FND	108	1		1 SAPK-10801INS4FND	S/4HANA Foundation, common parts.

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
S4HCM	101	2	11	SAPK-10102INS4HCM	SAP Human Capital Management for SAP S/4HANA on premise edition
S4HCMCAE	101	2		SAPK-10102INS4HCMCAE	
S4HCMCAR	101	2		SAPK-10102INS4HCMCAR	
S4HCMCAT	101	2		SAPK-10102INS4HCMCAT	S4hcmcat
S4HCMCAU	101	2		SAPK-10102INS4HCMCAU	
S4HCMCBE	101	2		SAPK-10102INS4HCMCBE	
S4HCMCBG	101	2		SAPK-10102INS4HCMCBG	
S4HCMCBR	101	2		SAPK-10102INS4HCMCBR	
S4HCMCCA	101	2		SAPK-10102INS4HCMCCA	S4hcmcca
S4HCMCCCH	101	2		SAPK-10102INS4HCMCCCH	
S4HCMCL	101	2		SAPK-10102INS4HCMCL	
S4HCMCCN	101	2		SAPK-10102INS4HCMCCN	
S4HCMCCO	101	2		SAPK-10102INS4HCMCCO	
S4HCMCCZ	101	2		SAPK-10102INS4HCMCCZ	S4hcmccz
S4HCMDE	101	2		SAPK-10102INS4HCMDE	S4hcmde
S4HCMCDK	101	2		SAPK-10102INS4HCMCDK	
S4HCMCEG	101	2		SAPK-10102INS4HCMCEG	
S4HCMCES	101	2		SAPK-10102INS4HCMCES	S4hcmces
S4HCMCFI	101	2		SAPK-10102INS4HCMCFI	
S4HCMCFR	101	2		SAPK-10102INS4HCMCFR	S4hmcfr
S4HCMCGB	101	2		SAPK-10102INS4HCMCGB	S4hmcgb
S4HCMGR	101	2		SAPK-10102INS4HCMGR	
S4HCMCHK	101	2		SAPK-10102INS4HCMCHK	
S4HCMCHR	101	2		SAPK-10102INS4HCMCHR	S4hcmchr
S4HCMCHU	101	2		SAPK-10102INS4HCMCHU	S4hcmchu
S4HCMCID	101	2		SAPK-10102INS4HCMCID	
S4HCMCIE	101	2		SAPK-10102INS4HCMCIE	S4hmcie
S4HCMCIN	101	2		SAPK-10102INS4HCMCIN	
S4HCMCIT	101	2		SAPK-10102INS4HCMCIT	S4hmcit
S4HCMCJP	101	2		SAPK-10102INS4HCMCJP	
S4HCMCKR	101	2		SAPK-10102INS4HCMCKR	S4hmcckr

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
S4HCMCKW	101	2		SAPK-10102INS4 HCMCKW	
S4HCMCKZ	101	2		SAPK-10102INS4HCMCKZ	S4hcmckz
S4HCMCMX	101	2		SAPK-10102INS4 HCMCMX	
S4HCMCMY	101	2		SAPK-10102INS4 HCMCMY	
S4HCMCNL	101	2		SAPK-10102INS4HCMCNL	S4hmcn1
S4HCMCNO	101	2		SAPK-10102INS4 HCMCNO	S4hmcn0
S4HMCNZ	101	2		SAPK-10102INS4 HMCNZ	S4hmcnz
S4HCMCOM	101	2		SAPK-10102INS4 HCMCOM	
S4HCMCPH	101	2		SAPK-10102INS4 HCMCPH	
S4HCMCPL	101	2		SAPK-10102INS4HCMCPL	S4hmcpl
S4HCMCPT	101	2		SAPK-10102INS4HCMCPT	S4hmcpt
S4HCMCQA	101	2		SAPK-10102INS4 HCMCQA	
S4HCMCRO	101	2		SAPK-10102INS4 HCMCRO	
S4HCMCRU	101	2		SAPK-10102INS4 HCMCRU	S4hmcru
S4HCMCSA	101	2		SAPK-10102INS4 HCMCSA	
S4HCMCSE	101	2		SAPK-10102INS4 HCMCSE	
S4HCMCSG	101	2		SAPK-10102INS4 HCMCSG	
S4HCMCSI	101	2		SAPK-10102INS4HCMCSI	S4hmcsci
S4HCMCSK	101	2		SAPK-10102INS4 HCMCSK	S4hmcsk
S4HCMCTH	101	2		SAPK-10102INS4 HCMCTH	
S4HCMCTR	101	2		SAPK-10102INS4 HCMCTR	
S4HCMCTW	101	2		SAPK-10102INS4 HCMCTW	
S4HCMCUA	101	2		SAPK-10102INS4 HCMCUA	S4hmcua
S4HCMCUN	101	2		SAPK-10102INS4 HCMCUN	
S4HCMCUS	101	2		SAPK-10102INS4 HCMCUS	S4hmcus
S4HCMCVE	101	2		SAPK-10102INS4 HCMCVE	
S4HCMCZA	101	2		SAPK-10102INS4HCMCZA	
S4HCMGXX	101	2		SAPK-10102INS4 HCMGXX	
S4HCMRXX	101	2		SAPK-10102INS4 HCMRXX	
S4PACG	200	12	14	SAPK-20012INS4PACG	S4HANA connector for SAP Field Service Management

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
SAP_ABA	75I	1	1	SAPK-75I01INSAPABA	SAP Anwendungsbasis
SAP_BASIS	758	1	1	SAPK-75801INSAPBASIS	SAP Basis component
SAP_BW	758	1	1	SAPK-75801INSAPBW	SAP Business Warehouse
SAP_GWFND	758	1	1	SAPK-75801INSA PGWFND	SAP NetWeaver Gateway Foundation
SAP_UI	758	1	1	SAPK-75801INSAPUI	User Interface Technology
SPDGS	600	0			SoftProviding Core
SPMEAT	600	0			SoftProviding Meat
ST-A/PI	01V_731	3	3	SAPKITABC6	ST-A/PI Service Tools for Applications Plug-In
ST-PI	740	25	27	SAPK-74025INSTPI	Solution Tools Plugin
UIAPFI70	902	1	1	SAPK-90201INUIAPFI70	UI SFIN
UIBAS001	758	1	1	SAPK-75801INUIBAS001	UI for Basis Applications
UIHR002	100	23	27	SAPK-10023INUIHR002	UIHR002
UIMDG001	200	13	13	SAPK-20013INUIMDG001	UI for MDG Applications
UIS4HOP1	900	1	1	SAPK-90001INUUIS4HOP1	UI for S4Hana On Premise
UITRV001	300	10	10	SAPK-30010INUITRV001	UI for Travel
WFCUA	004_757	0			
WINSHTLQ	85B	0			
WMDXF	52B_753	0			
XITING	019_757	0			

4.4 Database - Maintenance Phases

Database Version	End of Standard Vendor Support*	Comment	Status	SAP Note
SAP HANA Database 2.0		Follows Application	✓	2378962

* 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.

4.5 Operating System(s) - Maintenance Phases

Host	Operating System	End of Standard Vendor Support*	End of Extended Vendor Support*	Comment	Status	SAP Note
5 Hosts	SUSE Linux Enterprise Server 15 (x86_64)	31.07.2028	31.07.2031	Limited (LTSS)	✓	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.

4.6 HANA Database Version for P4H

The following table shows your current/planned SAP HANA database version.

HANA Database Version

SID	SPS Stack	SP Revision	Maintenance Revision	In Maintenance ?	SAP Notes	Upgrade Information
P4H	2.00 SP 07	2.00.077.000	no	✓	2378962	✓

4.7 SAP HANA: SQLDBC Version

4.7.1 SAP HANA: Installed SQLDBC Version

The following table shows your currently installed SAP HANA database client component version.

Instance Name	SQLDBC Version	Rating
4 Instances	2.17.022	✓

SAP Note	Description
1906576	HANA client and server cross-version compatibility
2339267	The SAP HANA client version and installation manifest file doesn't match currently available SAP HANA server version information

4.8 SAP HANA: Installed DBSL Version

The following table shows the DBSL version currently installed.

Instance	Current DBSL Release	Current DBSL Patch	Recommended DBSL Release	Recommended DBSL Patch	Rating
vpe4ap1_PE4_00	793	81	793		✓
vpe4ap4_PE4_00	793	81	793		✓
vpe4ap5_PE4_00	793	81	793		✓
vpe4ci_PE4_00	793	81	793		✓

Your installed SAP HANA DBSL meets the recommended requirement to access the SAP HANA database.

4.9 SAP Kernel Release

Your system is running an SAP kernel that is up to date. This means that you have the latest available improvements and error corrections offered by SAP to its customers.

Instance(s)	SAP Kernel Release	Patch Level	Age in Months	OS Family
4 instances	793	83	5	Linux (x86_64)

4.9.1 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://me.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



KRNL793PL83 in the SAP Note search. For detailed information, see SAP Note [1802333](#) – Finding information about regressions in the SAP kernel.

5 Hardware Capacity

General This analysis focuses on the workload during the peak working hours (9-11, 13) and is based on the hourly averages collected by SAPOS COL. 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.

We have checked your system for potential

Memory If your hardware cannot handle the maximum memory consumption, it can lead to memory contention in your SAP system that can impair performance. The paging rating defines the ratio of memory activity to main 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.

**CPU or memory bottlenecks and found that
the hardware of your servers is sufficient for
the current workload.**

Server	Max. CPU load [%]	Date	Rating	RAM [MB]	Max. Paging [% of RAM]	Date	Rating	Analysis Start	Analysis End
Ixbell110	25	02.09.2024	✓	96.300	0		✓	02.09.2024	08.09.2024
Ixbell120	27	05.09.2024	✓	94.254	0		✓	02.09.2024	08.09.2024
Ixbell121	24	02.09.2024	✓	94.254	0		✓	02.09.2024	08.09.2024
Ixbell105	16	04.09.2024	✓	96.300	0		✓	02.09.2024	08.09.2024
Ixbell106	22	02.09.2024	✓	3.527.096	0		✓	02.09.2024	08.09.2024

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 of System PE4

This chart displays the main task types and indicates how their workload is distributed in the system. The table below lists the detailed KPIs.

Response Time Components In Hours

Task Type	Response Time	Wait Time	CPU Time	DB Time	GUI Time
RFC	4.051,8	112,7	748,6	899,5	0,0
BATCH	1.850,6	0,1	408,0	545,8	0,0
DIALOG	493,9	11,1	157,0	182,2	77,3
HTTP(S)	337,8	10,4	53,6	102,2	0,0
UPDATE	268,9	18,8	82,2	160,2	0,0
Others	14,8	11,0	0,6	2,4	0,0

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	... Text cut, see SAP Note 3210457			

6.2 Workload Distribution PE4

The performance of your system was analyzed with respect to the workload distribution. We did not detect any major problems that could affect the performance of your SAP system.

6.2.1 Workload Distribution across ABAP Application Servers

To prevent a workload imbalance on one or more servers, we have analyzed the workload statistics for each SAP instance in your SAP production system.

If your total hardware capacity is sufficient to handle your peak workload, an overload on one or more servers can increase response times for all users logged on to those servers. If the affected servers are running updates or a database instance, all users can be affected.

The following diagrams show the system workload distribution across all instances. We strongly recommend that you distribute the workload equally across all application servers.

The following aspects of the workload are evaluated below:

- The total number of transaction steps performed on the different servers
- The percentage of CPU time consumed by SAP applications running on the different servers

If the workload is distributed equally, the distribution of CPU time should be proportional to the number of CPUs on the different servers.

Note that your database capacity is limited by the database server hardware available. This is important, since your database is a central resource for all system activities. In contrast, application servers are not a central resource and affect only the users on that particular server. CPU shortages can be solved by improving the workload distribution or by adding a new application server. For information about automatic load balancing, refer to SAP Note [26317](#).

6.2.2 Workload by Application Module

The following diagrams show how each application module contributes to the total system workload. Two workload aspects are shown:



- CPU time: total CPU load on all servers in the system - Database time: total database load generated by the application

All programs that are not classified in the Application Hierarchy are summarized in the "Unassigned" category. Customer programs, industry solutions, and third-party add-on developments may fall into this category.

The Application Hierarchy can be found in the Repository Browser (transaction SE80): in the "Object Category" selection field choose "Application Hierarchy".

6.2.3 DB Load Profile



The number of work processes creating database load in parallel is not significantly high.

The following diagram shows the DB load caused by dialog, RFC, HTTP(S), and background tasks, over different time frames.

The data provided in the diagram represents the average number of database processes occupied by each task type in the database during the specified time frames.

These statistics are calculated as a weekly average, the average values over six working days with a unit of one hour. Periods between 00:00-06:00 and 21:00-24:00 contain an average value per hour, as these are not core business hours.

You can enable 24-hour monitoring by implementing SAP Note 910897. With 24-hour monitoring, the time profile returns the workload of the system or application server on an hourly basis rather than returning an average value per hour for the periods 00:00-06:00 and 21:00-24:00.

By comparing the load profiles for dialog and background activity, you can get an overview of the volume of background activity during online working hours.

7 Performance Overview PE4



The performance of your system was analyzed with respect to the average response times and total workload. We did not detect any major problems that could affect the performance of your system.

Note: To access the response time statistics in SAP EarlyWatch Alert Workspace, click [system response time](#)

The following table shows the average response times for various task types:

Averages of Response Time Components in ms

Task type	Dialog Steps	Response Time	CPU Time	Wait Time	Load Time	DB Time	GUI Time
DIALOG	1.868.743	951,3	302,4	21,3	4,0	351,0	148,9
RFC	27.986.649	521,2	96,3	14,5	4,2	115,7	0,0
UPDATE	7.920.060	91,6	27,7	8,4	2,9	52,7	0,0
UPDATE2	4.955.953	49,0	15,5	0,2	1,3	32,2	0,0
BATCH	2.822.614	2.360,3	520,4	0,1	7,9	696,1	0,0
SPOOL	86.860	617,0	26,9	456,7	0,1	101,4	0,0
HTTP	694.566	853,1	35,8	20,1	0,3	182,3	0,0
HTTPS	2.706.624	224,5	60,4	8,6	3,9	84,8	0,0
WS-HTTP	12.766	1.220,8	366,6	6,9	6,2	906,5	0,0

7.1 Transaction Profile Check

The following tables show the response times and the number of dialog steps for the transactions that cause the heaviest workload in your system.

7.1.1 Transactions by Total Workload

To access the transaction response time in SAP EarlyWatch Alert Workspace, click [here](#).

The following tables list the activities with the highest contribution to the total workload.

To view the workload of all transactions/programs, you can use the Workload Monitor in your SAP system. You can refer to this [Guided Answer](#) to diagnose a general performance problem in Workload Analysis.

Workload by Transaction (Dialog/HTTP(S)/WS-HTTP)

Transaction	Type	Dialog Steps	Total Resp. Time in %	Avg. Resp. Time in ms	Avg. CPU Time in ms	Avg. DB Time in ms	Avg. GUI Time in ms
SAPMHTTP	HTTPS	2.686.605	5,8	224,5	60,6	84,9	0,0
SAPMHTTP	HTTP	694.449	5,7	852,5	35,3	182,1	0,0
/SPDGS/DP_RUNTIME	DIA	187.216	2,6	1.427,3	702,5	445,1	147,5
SBWP	DIA	78.035	1,2	1.669,7	271,9	845,6	459,6
VL10	DIA	9.577	1,2	13.036,4	6.496,7	6.746,6	58,6
ZCP1N	DIA	2.642	0,9	35.500,3	16.596,6	16.276,6	65,2
/WMD/FP_INVM	DIA	80.182	0,8	1.019,0	232,1	150,3	605,1
FCLOCO	DIA	577	0,8	139.937,7	145,9	653,3	176,5
ZLELIEFUPD	DIA	946	0,7	77.361,0	16.932,6	22.976,2	55,2
SESSION_M_ANAGER	DIA	110.205	0,6	577,7	44,0	267,6	145,2

1.6% of the total response time in the above table is caused by customer transactions.

Workload by Transaction (Batch)

Transaction	Dialog Steps	Total Resp. Time in %	Total Resp. Time ins	Total CPU Time ins	Total DB Time in s
ZLE_LIEFERUPDATE	12.889	10,4	1.082.369,0	190.994,0	335.678,2
RSWAITSEC	31.569	5,6	586.167,0	457,0	932,6
/NEPTUNE/HAND LER_LOCKING	27	5,3	550.529,0	1.280,0	3.482,6
YBIL_PROCESS_TRANSACTION	137.103	5,1	533.549,0	114.015,0	162.255,5
/SPDGS/GMOVBTC	40.889	4,8	505.805,0	117.621,0	69.804,8
WS_MONITOR_O UTB_DEL_GDSI	10.305	3,8	398.824,0	84.834,0	219.873,8
/XITING/XT_USR0 7_COLL_MANDT	1.122	3,5	360.985,0	868,0	2.417,1
Z1MM_PO_RM06EF00	20.204	1,7	178.837,0	1.206,0	3.000,1
SDBILLDL	247	1,4	146.700,0	126.288,0	20.763,6
RSNAST00	8.836	1,4	142.917,0	87.018,0	56.971,5

17.2% of the total response time in the above table is caused by customer transactions.

Workload by Web Services

Service	Calls	Total Resp. Time in %	Avg. Resp. Time in ms	Avg. CPU Time in ms	Avg. DB Time in ms	Type
Total	13.985	100,0	1.447,2	350,2	986,1	
Z_PAR_WS_DI SPO_GET01	140	57,1	82.601,6	22.930,9	66.903,6	synchronous
ZPAR_SD_SOAP_PAZ	9.676	16,8	350,9	135,7	204,1	synchronous
YBIL_II_SI_PDM2S AP_MAT_HUEGLI	42	8,1	39.230,9	185,7	4.732,2	asynchronous
YBIL_II_SI_GOODS _MVT_CS_B_SAP_I	571	6,9	2.445,8	106,5	1.697,0	asynchronous
YBILII_SI_CSB2SA P_PURCHASE_ORD	167	3,9	4.727,4	204,1	3.348,3	asynchronous
YBILII_SI_CSB2 SAP_GOODS_RECEIP	168	2,6	3.144,9	225,6	2.021,1	asynchronous
/PACG/ECM_WS	1.834	1,8	201,1	51,9	56,1	synchronous
YBILII_SI_ORDER_IMPORT_CRM_SAP	1.077	1,2	230,1	56,0	115,6	synchronous
YBIL_II_SI_ALPHA _FI_STOCK_MOVE	2	0,6	63.226,0	16.655,0	39.345,5	asynchronous
YBILII_SI_ALPHA _FI_DOCUMENTS_I	25	0,3	2.807,9	862,4	1.678,9	asynchronous

7.1.2 Transactions by DB Load

The following transaction profiles list the transactions that have the greatest share in the database load, sorted by percentage of total database access times.

Database Load by Transactions (Dialog/HTTP(S))

Transaction	Type	Dialog Steps	Total DB Time in %	Avg. DB Time in ms
SAPMHTTP	HTTPS	2.686.605	6,7	84,9
SAPMHTTP	HTTP	694.449	3,7	182,1
/SPDGS/DP_RUNTIME	DIA	187.216	2,4	445,1
SBWP	DIA	78.035	1,9	845,6
VL10	DIA	9.577	1,9	6.746,6
ZCP1N	DIA	2.642	1,3	16.276,6

Transaction	Type	Dialog Steps	Total DB Time in %	Avg. DB Time in ms
SESSION_MANAGER	DIA	110.205	0,9	267,6
SAPKKA07	DIA	98	0,8	282.987,3
ZLELIEFUPD	DIA	946	0,6	22.976,2
ZMMCHBS	DIA	49.811	0,5	374,7

2.4% of the total database time in the above table is caused by customer transactions.

Database Load by Transactions (Batch)

Transaction	Dialog Steps	Total DB Time in %	Total DB Time ins
ZLE_LIEFERUPDATE	12.889	9,8	335.678,0
WS_MONITOR_OUTB_DEL_GDSI	10.305	6,4	219.874,0
YBIL_PROCESS_TRANSACTION	137.103	4,7	162.256,0
ZPAR_PULL_PPS2SAP	7.781	2,6	90.453,0
/HOAG/AA_AUTOBUCHUNG	84	2,3	77.832,0
/SPDGS/GMOVBTCH	40.889	2,0	69.805,0
/IBP/ECC_SEND_ORDER_STOCK	6	2,0	66.919,0
(BATCH)	796.544	1,8	62.288,0
RSNAST00	8.836	1,7	56.972,0
RSPROCESS	382	1,4	46.515,0

17.1% of the total database time in the above table is caused by customer transactions.

8 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. ... Text cut, see SAP Note 3210457

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.

Please refer to this [Guided Answer](#) on how to analyze RFC performance issues.

Load Overview

Initial System	Load [s]	Load %
Local system PE4	13.844.312	88,99
Sum of external systems	1.713.068	11,01
n/a (not available)	51	0,00
RFC load (sum of above)	15.557.431	100,00
RFC load in Performance Overview	14.587.695	93,77
Load of all task types in Performance Overview	29.710.743	190,97

Top 20 RFC Calls From External Systems - Average Times [ms]

Initial System	Initial Action	Total Resp. Time ins	% of RFC Load	Avg. Response Time	Avg. CPU Time	Avg. DB Time	Avg. Roll Wait Time
WP2	/SCWM/MON	647.481	4,16	853,7	327,5	537,5	3,2
WP2	/SCWM/RFUI	233.552	1,50	1.867,3	156,5	671,5	61,0
undefined	undefined	171.858	1,10	246,1	75,2	111,4	25,5
WP2	/SCWM/ADGI	131.165	0,84	11.665,3	1.311,9	10.465,2	11,6
WP2	/SCWM/PRD O	61.070	0,39	2.422,8	1.110,5	1.056,8	13,3
WP2	SAPMHTTP	48.871	0,31	1.565,0	93,0	1.122,5	135,5
YODA_DP_K EXV1	__jsview0--oButWeighin g_press_250	14.666	0,09	4.958,1	624,1	3.681,4	0,1

Initial System	Initial Action	Total Resp. Time ins	% of RFC Load	Avg. Response Time	Avg. CPU Time	Avg. DB Time	Avg. Roll Wait Time
CM_COCKPI T	R000000051/ 8000002788/ PRD	14.271	0,09	1.760,2	259,6	191,4	67,1
SPA	EFWK RESOURCE MANAGER	6.834	0,04	2.280,4	311,9	792,2	737,5
DE4	SEU_INT	5.857	0,04	2.782,5	22,4	621,7	1.014,2
undetermined	undetermined_startup_0	5.195	0,03	621,1	336,1	281,3	0,1
WP2	Z_EWM_650 0_YEWMGI_PICK_FULL_PALL	4.085	0,03	583.536,7	135,7	537.863,0	45.542,4
pps.processProductionOrder@1.0.0	---App--orderListTreeTable_cellClick_257	2.160	0,01	44.078,6	94,9	43.991,1	0,1
pps.processProductionOrder@1.0.0	t---App--searchSelectionButton_press_170	2.101	0,01	1.050.692,0	85,0	334.159,0	471.713,0
CM_SCMA	I000000091/ 8000000524/ PE4~200	1.869	0,01	1.382,1	181,5	109,0	3,5
SPA	RDDEPLOY	1.732	0,01	15.894,0	27,5	79,5	13.367,6
pps.processProductionOrder@1.0.0	__button7_press_386	1.666	0,01	555.175,3	533,3	275.430,7	0,0
pps.processProductionOrder@1.0.0	__button7_press_388	1.622	0,01	540.636,0	213,3	268.466,0	0,0
pps.processProductionOrder@1.0.0	__button7_press_390	1.621	0,01	540.278,0	390,0	268.103,0	0,0
DE4	SE18	1.518	0,01	6.964,3	14,0	1.084,6	4.281,6

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

Initial System	Initial Action	Total Resp. Time ins	% of RFC Load	Avg. Response Time	Avg. CPU Time	Avg. DB Time	Avg. Roll Wait Time
PE4	SAPMSSY1	3.590.987	23,08	723,8	91,3	80,9	70,2
PE4	SAPMHTTP	1.123.323	7,22	1.018,7	60,1	196,8	13,1
PE4	CALM Scheduler CALM_PE4CLNT500	834.069	5,36	29.771,2	22.652,2	5.346,9	0,8
PE4	/WMD/XF_PF_CREATE	783.562	5,04	7.164,6	790,7	1.448,0	0,7
PE4	BATCHMAN_SCHEDULER	748.323	4,81	4.768,0	332,7	787,0	2,2
PE4	Z_BC_5800_START_CIF_FAULTY_DOC	720.272	4,63	999,0	17,9	55,5	5,6

Initial System	Initial Action	Total Resp. Time ins	% of RFC Load	Avg. Response Time	Avg. CPU Time	Avg. DB Time	Avg. Roll Wait Time
PE4	Z_DGS_AL L_PDAO_U ND_PUFFE R_1200_D	635.743	4,09	195,4	26,1	39,2	0,2
PE4	YBIL_PRO CESS_TRA N_COOP_O RDERS	504.678	3,24	864,8	320,1	352,9	0,4
PE4	SBWP	471.252	3,03	2.675,6	173,3	262,4	0,2
PE4	Z_DGS_58 00_PDAO_ MOV_NEW	342.302	2,20	282,4	61,5	93,6	0,3
PE4	CALM Scheduler CALM_PE4C LNT200	279.939	1,80	1.742,3	611,9	266,7	0,9
PE4	CALM Scheduler CALM_PE4C LNT100	272.707	1,75	1.680,3	537,2	226,0	0,7
PE4	/XITING/ XT_USR07 _COLLECT OR_MANDT	223.188	1,43	501,7	2,0	0,0	0,2
PE4	/WMD/FP_IN VM	184.460	1,19	2.897,0	140,4	230,5	0,3
PE4	Z_DP_1100 _LIEFERUP DATE	178.427	1,15	406,8	78,3	253,2	0,2
PE4	/SDF/MON_S CHEDULER	157.320	1,01	4.494.869,7	11.850,3	158.652,0	246,3
PE4	/WMD/FP_IV _MONITOR	155.752	1,00	3.185,2	194,3	297,8	0,3
PE4	RVV50R10C	136.825	0,88	317,7	29,6	73,8	0,2
PE4	Z_BIL_5 800_UPL OAD_PAR _DLV99	133.681	0,86	474,8	76,3	329,7	0,3
PE4	CRBPA:DC_ CONTROLLE R(4ca5T3K UmbjD	131.551	0,85	2.160,4	521,0	466,8	0,9

Rating table

Rating	Check	Description	Date
✓	EarlyWatch Alert	Bell Schweiz AG	02.09.2024 - 08.09.2024
9✓	History of response time of PE4 Application profile of PE4	The long-term or short-term analysis of the response time does not show a critical trend 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 17/2024 to 20/2024

Long term: From calendar week 10/2024 to 20/2024

9.1 History of Response Time of PE4

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.

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: Dialog, HTTP(S), RFC.

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

Short term: From calendar week 17/2024 to 20/2024

Long term: From calendar week 10/2024 to 20/2024

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	50,9	↑	🟡	-159,7	↓	🟡
Dialog	-100,0	↓	🔴	-75,5	↓	🔴
HTTP(S)	77,4	↑	🟡	112,8	↑	🟡
RFC	121,7	↑	🟡	-253,2	↓	🔴

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	1,0	↗	🟡	-3,1	↗	🟡
Dialog	-1,9	↗	🟢	-1,5	↗	🟢

Task Type	Long Term Growth (%/week)	Trend	Rating	Short Term Growth (%/week)	Trend	Rating
HTTP(S)	1,5	↗	✓	2,2	↗	✓
RFC	2,3	↗	✓	-4,9	↗	✓

Rating Legend

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

9.2 Application profile

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

Short term: From calendar week 17/2024 to 20/2024

Long term: From calendar week 10/2024 to 20/2024

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 ins	% 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	PE4/vpe 4ap4_PE 4_00 /W MD/XF_P F_CREATE	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	19,8	-538,2	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe 4ap5_PE 4_00 /W MD/XF_P F_CREATE	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	169,2	-794,7	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ap 1_PE4_00 B ATCHM AN_SC HEDULER	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	-181,8	-28,1	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	WP2/vwp2 ap1_WP2_ 10 Z_EWM _6500_YE WMGI_PIC K_FULL_P ALL	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	10,3	257,6	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ap 1_PE4_00 S AP_WO RKFLO W_SYS TEM_D ELAYED	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	725,4	-39,4	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe 4ap1_PE 4_00 /X ITING/R B_SU53_ COLLECT OR_099	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	-0,4	0,9	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457

Task Type	Application	Total Resp. Time ins	% 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	PE4/vpe4ap1_PE4_00 Z_BC_5800_STA_RT_CIF_FAULTY_DOC	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	200,6	938,1	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	WP2/vwp2ap1_WP2_10 YEWMG_I021	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	429,6	1.301,8	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ap1_PE4_00 YBIL_PROCES_S_TRA_N_COOP_ORDERS	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	28,8	111,7	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
Dialog	/SPDGS/D_P_RUNTIME	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	3,2	-101,5	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ci_PE4_00 XITING/XT_USR07_COLLECTOR_MANDT	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	-80,5	-176,2	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ap1_PE4_00 Z_DGS_ALL_PDAO_UND_PUFFER_1200_D	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	-787,3	-1.312,7	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ci_PE4_00 SAPMSSY1	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	26,2	99,0	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ap5_PE4_00 CALM Scheduler CALM_PE4_CLNT200	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	60,2	8,2	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ap4_PE4_00 SAPMS SY1	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	-32,3	-57,9	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ap1_PE4_00 SAPMS SY1	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	25,1	76,9	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4ap1_PE4_00 SBWP	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	-57,7	-98,1	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457

Task Type	Application	Total Resp. Time ins	% 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	PE4/vpe4 ap5_PE4_00 SAPMS SY1	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	15,2	-13,4	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
Dialog	VL10	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	-122,1	-336,1	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457
RFC	PE4/vpe4a p5_PE4_00 SBWP	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457	5,7	42,7	... Text cut, see SAP Note 3210457	... Text cut, see SAP Note 3210457

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.

10 SAP System Operating PE4



The daily operation of your system was analyzed. We detected some problems that may impair system operation and stability.

Rating	Check
✓	Availability based on Collector Protocols
⚠	Program Errors (ABAP Dumps)
✓	Update Errors
⚠	Table Reorganization
⚠	Critical Number Ranges
⚠	Number Range Trace

10.1 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."

10.2 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. The following table contains the number of update errors detected.

We did not detect any problems.

10.3 Table Reorganization

When analyzing your database, we detected large or rapidly growing tables or indexes.

Recommendation: Implement the SAP Notes listed below to reduce the size of some of these tables or indexes.

Background: For more information about SAP Data Volume Management, see

[SAP DVM Community](#).

Table / Index Name	Size of Table / Index [MByte]	Recommended SAP Note
TST03	44.108,0	48400, 130978, 16083

10.4 Program Errors (ABAP Dumps)

619 ABAP dumps have been recorded in your system in the period 02.09.2024 to 09.09.2024. 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
02.09.2024	109
03.09.2024	190
04.09.2024	93
05.09.2024	131
06.09.2024	63
07.09.2024	12
08.09.2024	20
09.09.2024	1

Name of Runtime Error	Dumps	Server (e.g.)	Date (e.g.)	Time (e.g.)
DBIF_RTAB_KEY_ALREADY_EXISTS	1	vpe4ap5_PE4_00	02.09.2024	08:38:26
CALL_FUNCTION_REMOTE_ERROR	1	vpe4ap1_PE4_00	02.09.2024	08:38:27

Name of Runtime Error	Dumps	Server (e.g.)	Date (e.g.)	Time (e.g.)
DBSQL_CONNECTION_ERROR	12	vpe4ap5_PE4_00	02.09.2024	09:03:02
CALL_FUNCTION_OPEN_ERROR	1	vpe4ci_PE4_00	03.09.2024	07:52:06
DBSQL_SQL_INTERNAL_DB_ERROR	32	vpe4ap1_PE4_00	03.09.2024	09:17:16
DBIF_REPO_SQL_ERROR	1	vpe4ci_PE4_00	03.09.2024	09:36:05
DBIF_RSQl_SQL_ERROR	3	vpe4ap1_PE4_00	03.09.2024	09:36:05
DYNPRO_READ_FAILED	1	vpe4ap1_PE4_00	03.09.2024	09:36:05
DBIF_RTAB_SQL_ERROR	11	vpe4ap5_PE4_00	03.09.2024	09:36:08
DBSQL_SQL_ERROR	66	vpe4ap4_PE4_00	03.09.2024	09:36:09
DBIF_DSQL2_SQL_ERROR	1	vpe4ap1_PE4_00	03.09.2024	09:41:07
SYSTEM_CORE_DUMPED	1	vpe4ap5_PE4_00	03.09.2024	10:07:35
SESSIONMEM_QUOTA_WARNING	4	vpe4ap5_PE4_00	03.09.2024	16:58:14
SAPSQL_SQLS_INVALID_CURSOR	1	vpe4ap1_PE4_00	04.09.2024	07:29:17
TSV_TNEW_PAGE_ALLOC_FAILED	9	vpe4ap5_PE4_00	04.09.2024	08:22:56
SQL_CAUGHT_RABAX	3	vpe4ap5_PE4_00	04.09.2024	08:22:57
GEN_PROGRAM_NOT_EXISTS	2	vpe4ap4_PE4_00	04.09.2024	10:40:12
SYNTAX_ERROR	3	vpe4ci_PE4_00	04.09.2024	11:50:49
OPEN_DATASET_NO_AUTHORITY	1	vpe4ap5_PE4_00	04.09.2024	13:19:18
RFC_NO_AUTHORITY	10	vpe4ap4_PE4_00	04.09.2024	14:53:44
DBSQL_STMNT_TOO_LARGE	2	vpe4ci_PE4_00	04.09.2024	15:44:28
TIME_OUT	3	vpe4ap1_PE4_00	04.09.2024	16:08:47
ASSIGN_BASE_TOO_SHORT	1	vpe4ap1_PE4_00	04.09.2024	19:08:00
OBJECTS_OBJREF_NOT_ASSIGNED	6	vpe4ap4_PE4_00	05.09.2024	09:17:06
LIST_TOO_MANY_LPROS	3	vpe4ap1_PE4_00	05.09.2024	14:29:57
ITAB_ILLEGAL_SORT_ORDER	1	vpe4ap1_PE4_00	05.09.2024	18:24:48
CONVT_OVERFLOW	3	vpe4ap4_PE4_00	05.09.2024	20:31:29
DBSQL_DUPLICATE_KEY_ERROR	21	vpe4ap5_PE4_00	06.09.2024	12:36:47
UNCAUGHT_EXCEPTION	14	vpe4ap4_PE4_00	06.09.2024	12:36:47
ASSERTION_FAILED	16	vpe4ap5_PE4_00	06.09.2024	12:38:56
DYNPRO_FIELD_CONVERSION	1	vpe4ap1_PE4_00	06.09.2024	12:41:48
DYNPRO_MSG_IN_HELP	3	vpe4ap1_PE4_00	06.09.2024	13:58:37
CONVT_NO_NUMBER	10	vpe4ci_PE4_00	06.09.2024	15:31:27
DBSQL_SQL_DEADLOCK_DETECTED	90	vpe4ap1_PE4_00	06.09.2024	15:51:53
DYNPRO_SEND_IN_BACKGROUND	1	vpe4ap1_PE4_00	06.09.2024	16:54:34
MESSAGE_TYPE_X	18	vpe4ci_PE4_00	06.09.2024	17:54:23
RAISE_EXCEPTION	21	vpe4ap5_PE4_00	06.09.2024	18:29:33
TABLE_ILLEGAL_STATEMENT	15	vpe4ci_PE4_00	07.09.2024	14:57:51
GETWA_NOT_ASSIGNED	8	vpe4ap5_PE4_00	07.09.2024	15:22:35
ITAB_LINE_NOT_FOUND	203	vpe4ci_PE4_00	08.09.2024	16:34:32
SAPSQL_DATA_LOSS	3	vpe4ap5_PE4_00	08.09.2024	22:55:21
CALL_FUNCTION_SEND_ERROR	12	vpe4ci_PE4_00	09.09.2024	02:05:35

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 found several ABAP dumps that need your attention. Evaluate and resolve the above dumps. If you cannot find a solution, create a case using the [Get Support application](#) in SAP for Me (KBA 1296527).

10.5 Critical Number Ranges

We have checked the usage of ABAP number ranges and found some objects that have been used significantly.

The object names in column "Object" are provided with a direct link into the analysis of number ranges in the EarlyWatch Alert Workspace. There you can view the time series of the number range and a predicted worst-case date when the number range may be exhausted, provided that enough data is already available.

Rating	Client	% Used	% Warning	Object	Short text	Interval	Length	Remaining Numbers	Rolling (Yes/No)	# per Week
!!	200	81,50	90,00	BU_PAR_TNER	Business partner	Z1	5.000	925	No	10
!!	200	4,16	2,00	/SPDGS/LT	Load carrier	01	5.000.00 0.000	4.791.87 9.199	Yes	416.570

This table shows our findings.

Please note that the following number ranges are not considered relevant for the check and thus are not included in the service data that is extracted from your system:

- Number ranges that have never been used
- External number ranges
- Number ranges of the client 000 except SPO_NUM, AENDBELEG

Furthermore, there are number ranges that are no longer considered critical and thus have been removed from the display here in the EarlyWatch Alert report:

- Rolling number ranges that have rolled successfully in the past
- After three successful EarlyWatch Alert sessions, number ranges that do not change in their level are removed from the check.

These are still visible in the [EarlyWatchAlert Workspace](#)

The column "Length" indicates the total number of numbers in the number range.

The column "% Warning" corresponds to the "% Warning" value that is set in the transaction SNRO, except that in SNRO the percentage means the share of not yet used numbers. Here we show the share of already used numbers like everywhere else where a fill level threshold is used.

The column "Weeks" may contain a figure that indicates in how many weeks a number range might fill completely if it is used in the same rate like in the last two weeks.

In contrary to the prediction of the date when a number range may fill completely that is available in the EarlyWatch Alert Workspace this prediction is not calculated by means of machine learning but by simple linear extrapolation of up to three last known values. Take them with a grain of salt.

All empty columns will be hidden to improve the readability of the table.

If a number range is exhausted, then the following may happen:

Non-rolling Number Range

- The process gets no new number and receives an error message.

Rolling Number Range

- The next number drawn after the last one will again be the one defined by the "from" value. There is no warning.
- There might be old objects with keys that are now drawn again from the number range. Depending on the business process, either existing objects will be overwritten, or they cannot be saved because of conflicting unique keys. The former might happen undetected and usually this is not what you want.

Recommendation: Check the number ranges that are critical to your business and make sure that you have enough numbers available. Depending on the business process and application area, the number range can be extended:

- By adapting the interval parameters "from number", "to number", and "level"
- By providing a new interval. This might happen automatically for some applications.

In case of rolling number ranges, make sure that old objects are reorganized, deleted, or archived in time before the number range reaches its limit.

Regarding specific number ranges, further information may be found in SAP Notes or Knowledge Base articles. Use the number range object name as a search criterium.

If you think that the rating is too harsh, that is, there are plenty of numbers still available, then check the warning level of that number range object in transaction SNRO or SNUM. Enter the number range object name and choose *Display*. Then check the value of *% Warning*. For example, a value of 10.0 % means "warn me if there are only 10 % of the possible numbers left", while here in this check, the respective *fill level* is displayed. In this example it would be 90 %. The warning level should nevertheless be set according to business requirements.

See also [SAP Note 2292041](#) and [SAP Help Portal Number range objects](#)

10.6 Number Range Trace



The following table shows the findings regarding the number range trace. Please follow the recommendations below the table.

An active number range trace severely affects the performance of number assignment. It is meant as a means to track down specific issues for a short period of time.

For general information about the number range trace, please read [SAP Note 2611178](#).

Number Range Trace Information

Remark	Client	NR Object	Subobject	NR Number	To Year	Trace Active	Orphaned Trace Records	No. of Trace Records
3	200	RV_BELEG		01	0000		<input checked="" type="checkbox"/>	1

Recommendation: Depending on the figure in the column Remark, we recommend:

- (1) For this number range object, the trace is active. Please check whether this is necessary. The number range trace can cause performance degradations and thus should only be used to track down a specific issue. When this has been finished, the trace should be switched off.
- (2) For this number range object, the trace is not active but there are still trace records available. See column No. of Trace Records. These should be deleted once they are not needed any more.
- (3) There are trace records of a number range trace that has been deleted. These should be deleted once they are not needed any more.
- (4) There is an orphaned entry for this number range object in the table NKPARMS. You can delete it with the program NK_SET_SYSLOG_PARMS.

The Number Range Trace is managed using program NK_SET_SYSLOG_PARMS. Trace records can be viewed and/or deleted using program NK_DISPLAY_TRACE.

See also [SAP Note 2611178](#).

The configuration of number range traces and the display of trace records with NK_DISPLAY_TRACE is not cross-client. You must log on to the respective client to follow the recommendations. See the client field in the table above.

11 Security



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

Rating	Check	System ID
!	System Recommendations (HANA)	P4H
✓	Maintenance Status of current SAP HANA Database Revision	P4H
!	SAP HANA System Privilege DATA ADMIN	P4H
✓	SAP HANA Password Policy	P4H
!	SAP HANA Audit Trail	P4H
✓	SAP HANA SQL Trace Level	P4H
✓	SAP HANA Network Settings for Internal Services	P4H
!	SAP HANA Network Settings for System Replication Communication (listeninterface)	P4H
!	Activation Status and Validity of User SYSTEM	P4H
✓	System Recommendations (ABAP)	PE4
✓	Age of Support Packages	PE4
!	Default Passwords of Standard Users	PE4
!	Control of the Automatic Login User SAP*	PE4
✓	Protection of Passwords in Database Connections	PE4
✓	ABAP Password Policy	PE4
!	RFC Gateway Security	PE4
✓	Message Server Security	PE4
!	Critical authorizations, which allow to do anything	PE4
!	Critical authorizations, which should not be used in production	PE4
!	Critical authorizations, which should only see very limited use in production	PE4

11.1 SAP HANA Database P4H

11.1.1 System Recommendations (HANA)

System Recommendations is not used for this system.

Recommendation: SAP strongly recommends applying important security fixes as soon as possible. The 'System Recommendations' application provides a detailed recommendation regarding which SAP security notes (ABAP and non-ABAP) should be implemented based on the actual status of the system and the notes already implemented. This is a mandatory prerequisite for setting up a strong security patch process. For more information, refer to <https://support.sap.com/sysrec>.

11.1.2 SAP HANA System Privilege DATA ADMIN

11.1.2.1 Users with DATA ADMIN Privilege

Users in your SAP HANA database have the DATA ADMIN system privilege.

The count considers direct grants to the users as well as indirect grants using roles. Users are counted as activated if the validity time range matches the time of the evaluation and the user is not deactivated.

The SYSTEM and _SYS_REPO users are not considered, because these users have the DATA ADMIN privilege by design and the privilege cannot be revoked from these users.

Number of Additional Users with DATA ADMIN Privilege	1
--	---

DATA ADMIN provides the authorization to modify and delete every object in every schema.

Recommendation: Remove the DATA ADMIN privilege from all user accounts except the SYSTEM und _SYS_REPO users.

11.1.3 SAP HANA Audit Trail

Sources of information for the SAP HANA audit trail:

- [SAP HANA Security Guide for SAP HANA Platform](#) - [SAP HANA Security Guide for SAP HANA Platform](#) -> Audit Trails -
- [SAP HANA Security Guide for SAP HANA Platform](#) -> Best Practices and Recommendations for Creating Audit Policies -
- [SAP HANA Administration Guide for SAP HANA Platform](#)

Note: The activation of the SAP HANA audit trail may lead to extensive growth of table CS_AUDIT_LOG_ if the criteria for the logging are too widely set. If the growth is not monitored, it can lead to a business down situation if the table reaches the maximum record limit of SAP HANA.

11.1.3.1 Auditing Status

Auditing is disabled in the security settings of your SAP HANA database.

Recommendation: Activate the SAP HANA audit trail and define appropriate audit policies.

11.1.3.2 Audit Policies

No customer-defined audit policies are enabled.

Recommendation: Define audit policies according to your needs.

11.1.4 SAP HANA Network Settings for System Replication Communication (listeninterface)

Rating	File Name	Section	Key	Current Value	Comment
⚡	global.ini	system_replication_communication	enable_ssl	off	TLS encrypted communication expected (when listeninterface = .global)
⚠	global.ini	system_replication_communication	listeninterface	.global	TLS encrypted communication expected (when listeninterface = .global)
⚠	global.ini	system_replication_hostname_resolution	169.254.76.36	lxbell106	
⚠	global.ini	system_replication_hostname_resolution	169.254.76.52	lxbell111	

With current parameter settings, the default (public) network route is used for system replication communication or the system replication communication is not strictly restricted to the hosts of your scenario. This can be used to attack your SAP HANA system.

Recommendation: Immediate action is recommended. Implement one of the best practices outlined below:
Enable TLS encryption for system replication communication to ensure that all communication is limited to hosts having the same system PKI. As of SAP HANA 1.0 SPS 10, a system PKI is automatically set up as part of the installation. It is ready for use without further configuration:

1. Set parameter `enable_ssl` to value 'on'. The parameter is in file `global.ini`, section `system_replication_communication`.
2. Encrypt the Internal Communication of SAP HANA by changing parameter `ssl` to value 'systempk'. This parameter is in file `global.ini`, section [communication].

Both parameters are not case sensitive and must be set on all sites of your replication scenario. After making the change, you must restart your SAP HANA system.

This is the simplest approach to secure system replication communication. It is recommended for all current SAP HANA revisions: SAP HANA 1.0 revision 122.15 (January 2018) or later and SAP HANA 2.0 revision 12.4 (February 2018) or 24 (March 2018) or 30 (April 2018) or any later revision of the respective Support Package).

If your system is already configured with separate networks for public, internal, and system replication

communication, you can also choose an alternative approach. With such a network topology, you can ensure that hosts listen to system replication communication only on the dedicated ports of the separate network and reject incoming requests on other interfaces:

1. Set parameter `listeninterface` in section `system_replication_communication` to '`.internal`'.
2. In the `system_replication_hostname_resolution` section of the `global.ini` file, configure parameters that define a correct mapping of IP address to hostname for each host of your SR scenario. Select the appropriate name / value pairs based on your documentation of your network topology. Entries for hosts of neighboring sites must be included as a minimum.

Note that some SAP HANA scenarios do not support the parameter setting `listeninterface = .internal`. If you choose this option, refer to the [SAP HANA Security Guide](#) on SAP Help Portal.

11.1.5 Activation Status and Validity of User SYSTEM

The activation status and validity dates (VALID FROM and VALID TO) of user SYSTEM have been checked in system table USERS.

Rating	Check
OK	User SYSTEM is currently active and valid.

Active standard users are an easy and widely used target for hacking attacks since they are available in every system. Furthermore, the user SYSTEM is like a super user with very powerful user authorizations that cannot be revoked.

Recommendation: Review the current usage of user SYSTEM and set up and test a user and role concept, so that the use of user SYSTEM becomes obsolete.

Deactivate the user account with the SQL statement:
`ALTER USER SYSTEM DEACTIVATE USER NOW.`

To prevent misuse of user SYSTEM, activate related audit policies in your SAP HANA system as described in the SAP HANA Administration Guide.

11.2 ABAP Stack of PE4

11.2.1 Default Passwords of Standard Users

Standard users, including SAP* and DDIC, have default passwords.

Recommendation: Run report **RSUSR003** to check for standard users having default passwords in some clients.

Ensure that user **SAP*** exists in all clients and has a non-default password.

Ensure that profile parameter `login/no_automatic_user_sapstar` is set to 1.

Ensure that user **DDIC** has a non-default password in all clients.

Ensure that user **SAPCPIC** has a non-default password in all clients.

User **EARLYWATCH** was used in client 066 only. This client should no longer exist, and therefore, this user should not exist either in any client.

SAP Note [1749142](#) describes how to remove an obsolete client 066.

Make sure that user **TMSADM** exists only in client 000 and that the standard password has been changed. SAP Note [1414256](#) describes a support tool for changing the password of user TMSADM in all systems of the transport domain.

For more information, see "[Protecting Special Users](#)" either on SAP Help Portal or in the SAP NetWeaver AS ABAP Security Guide.

11.2.2 Control of the Automatic Login User SAP*

The profile parameter `login/no_automatic_user_sapstar` is set to 0 on at least one instance.

If the user master record belonging to user SAP* is deleted, it is possible to log on again with SAP* and the initial password.

The user SAP* then has the following properties:

- The user has all authorization, as all authorization checks are ignored.
- You cannot change the standard password.

You can deactivate the special properties of the built-in user SAP* using profile parameter `login/no_automatic_user_sapstar`.



Recommendation: Set profile parameter login/no_automatic_user_sapstar to 1. For further information, see SAP Note [68048](#).

11.2.3 ABAP Password Policy

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

11.2.4 RFC Gateway Security

11.2.4.1 Enabling an Initial Security Environment

Parameter: gw/acl_mode

Rating	Instance	Current Value	Recommended Value
!	All instances	0	1

Profile parameter gw/acl_mode is not set to 1.

Recommendation: Profile parameter gw/acl_mode should be set to 1 to activate a more secure default behavior if either of the access control lists defined by profile parameters gw/sec_info and gw/reg_info does not exist. SAP recommends setting profile parameter gw/acl_mode to 1 to establish an additional line of defense should any of the access control lists be missing. For more information, see SAP Note [1480644](#).

11.2.4.2 RFC Gateway Access Control Lists

Parameters: gw/sec_info gw/reg_info

Rating	Instance	Error Condition
✓	All instances	gw/reg_info and gw/sec_info are defined

reg_info

Rating	Instance	Error Condition	File does not exist (default)
!	All instances	P TP=*	

sec_info

Rating	Instance	Error Condition	File does not exist (default)
✓	All instances		

Parameter: gw/sim_mode

Rating	Instance	Current Value	Recommended Value
✓	All instances	0	0

At least one of the following critical conditions is true:

- Profile parameters gw/reg_info is not set
- File reginfo does not exist
- File reginfo contains at least one trivial entry

Recommendation: The profile parameters gw/sec_info and gw/reg_info provide the file names of the corresponding access control lists. These access control lists are critical to controlling RFC access to your system, including connections to RFC servers. You should create and maintain both access control lists, which you can do using transaction SMGW.

The files secinfo and reginfo, which are referenced by these profile parameters, should exist and should not contain trivial entries.

The profile parameter gw/acl_mode should be set to 1 to enable secure default rules if any of these files do not exist. The profile parameter gw/sim_mode should be set to 0 to disable the simulation mode which would accept any connections.

SAP recommends defining and properly maintaining these access control lists to prevent rogue servers from

accessing the system. For more information, see the following SAP Notes: SAP Note [1305851](#) - Overview note: "reg_info" and "sec_info".
 SAP Note [1408081](#) - Basic settings for reg_info and sec_info
 For more information, see "[Configuring Connections between SAP Gateway and External Programs Securely](#)" on SAP Help Portal and the [SAP Gateway wiki](#) on the SAP Community Network.
 See also the white paper on SAP Security Recommendations: Securing Remote Function Calls (RFC) available at https://support.sap.com/content/dam/support/en_us/library/ssp/security-whitepapers/securing_remote-function-calls.pdf.

11.2.5 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.

11.2.5.1 Critical authorizations, which allow to do anything

11.2.5.1.1 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	21	31	
099	11	168	
100	19	525	
200	107	3.296	
230	14	16	
500	20	1.119	

Authorization profile: SAP_ALL

11.2.5.1.2 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.

Caution: As of ABAP Release 7.57, the additional authorization object S_DBG is available that you can use to fine-tune the change authorizations in the debugger. If both authorization objects are configured for a user, the user receives the broader authorization from both authorization objects. This new authorization object is not yet checked in this report.

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
099	2	168	
100	19	525	
200	22	3.296	
500	58	1.119	

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

You can achieve this by adding 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.

11.2.5.2 Critical authorizations, which should not be used in production

11.2.5.2.1 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
000	1	31	✓
099	30	168	✗
100	42	525	✓
200	86	3.296	✗
500	96	1.119	✗

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 = *

11.2.5.3 Critical authorizations, which should only see very limited use in production

11.2.5.3.1 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
099	51	168	⚠
100	76	525	⚠
200	143	3.296	⚠
500	110	1.119	⚠

AUTHORIZATION OBJECTS: Object 1: S_TCODE with TCD=SA38
Object 2: S_PROGRAM with P_ACTION=SUBMIT P_GROUP=*
or
Object 1: S_TCODE with TCD=SE38
Object 2: S_DEVELOP with OBJTYPE=PROG OBJNAME=* ACTVT=16

11.2.5.3.2 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
000	1	31	✓
099	38	168	⚠
100	50	525	✓
200	78	3.296	⚠
500	67	1.119	✓

Authorization objects: Object 1: S_TCODE with TCD=SM59
Object 2: S_RFC_TT with ACTVT = 02 and RFC_SYSID = * and RFC_INSTNR = *

11.2.5.3.3 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 ... Text cut, see SAP Note 3210457

Client	No. of Users Having This Authorization	No. of Valid Users	Rating
000	1	31	✓
099	143	168	⚠
100	99	525	⚠
200	156	3.296	⚠
500	140	1.119	⚠

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

Rating	Check Performed
■	Number of Changes
■	Emergency Changes
✓	Failed Changes

12.1.1 Number of Changes

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

Problems have been detected regarding the daily collection of data into the configuration and change database (CCDB). This may lead to inaccurate or incomplete results of the service sessions.

Check the CCDB extractors using the extractor framework administration: 'Root Cause Analysis' work center -> Common Tasks -> 'Extractor FWK Administration'. On the 'Managed System' tab page, select the managed system and filter by the extractor name "CONFIGURATION" to check the status of the CCDB extractors.

Check the status of the single stores using the application log of the Solution Manager: Transaction SLG1, object = 'CCDB', subobject = '<SID>*', and date from = '<yesterday>'. Here you will find detailed error information about the config stores.

Software change management issues were found in your system. See the information in the following sections.

12.1.2 Number of Transport Requests

The following diagram contains information about the number of transport requests per day that were imported into the SAP system in the last week.

Date	Workbench and Relocation Requests	Customizing Requests	Transport of Copies
02.09.2024	2	1	0
03.09.2024	5	9	0
04.09.2024	6	10	0
05.09.2024	2	6	0
06.09.2024	1	1	0

12.1.3 Number of Transported Objects

The following diagram contains information about the number of objects per day that was imported into the SAP system in the last week.



Date	Objects in Workbench and Relocation Requests	Objects in Customizing Requests	Objects in Transport of Copies
02.09.2024	2	1	0
03.09.2024	34	57	0
04.09.2024	70	390	0
05.09.2024	3	30	0
06.09.2024	16	1	0

12.1.4 Emergency Changes

We analyzed the number of emergency changes in system PE4 in the last week.

Rating	Item	Value	Explanation
✓	Transport requests created in production	0	Number of transport requests; created or released in production.
⚠	Transport requests with short transition time	14	The duration between the export from the development system and the import into the production system was shorter than one day.
◆	Total number of transport requests	25	Total number of transport requests in production.

12.1.4.1 Transport Requests with a short Transition Time

Request	Export from DEV	Import in PRD
DE4K981940	02.09.2024 15:34:27	03.09.2024 15:10:03
DE4K982805	03.09.2024 15:00:31	03.09.2024 15:09:52
DE4K982807	02.09.2024 16:54:20	03.09.2024 15:09:53
DE4K982811	02.09.2024 16:25:11	03.09.2024 15:09:56
DE4K982839	03.09.2024 10:11:49	03.09.2024 12:34:32
...		

Recommendation: Transport requests with a short transition time of less than one day have occurred in the last week. These transports may not have been tested sufficiently. Make sure that they did not cause problems in production.

12.1.5 Failed Changes



In this check, we analyzed the number of failed changes in system PE4 during the last week.

Rating	Item	Value	Explanation
✓	Transport requests with import errors	0	Number of transport requests with import errors that were not resolved within one hour.
✓	Overtakers and bypassed transport requests	0	If an old object version overwrites a newer one we count this as a transport sequence error. We count both the overtaker transport and the bypassed transport. Each transport is only counted once.
◆	Total number of transport requests	25	Total number of transport requests that were imported or released in production within the last week.

13 Financial Data Quality

After execution of the “quick” consistency checks and execution of the main reconciliation report, NO issues were identified that require your attention.

Please note that, due to a technical limitation in automatic data collection, we can only identify high-level indicators, which are a general sign of further inconsistencies in financial data.

The current Financial Data Quality chapter contains essential information about the quality and consistency of your financial data.

This chapter is structured with three subchapters: “Financial Data Integrity”, “Financial Data Management”, “Reconciliation for S/4HANA”. The first two chapters are based on “quick” checks of different financial modules. The latter chapter displays the status and results of the main reconciliation checks.

It is important to understand that, due to the technical limitation of the automated data collection, we can cover only a limited result list in your system using the “quick” consistency checks. The reconciliation checks are the main sources of data for our financial data quality analysis and should be executed. These checks ensure full transparency at the consistency level of your financial data.

13.1 Financial Data Integrity

Our “quick” checks identified no inconsistencies in the area of Financial Data Integrity that require your attention.

13.2 Financial Data Management

Our “quick” checks identified no inconsistencies in the area of Financial Data Management that require your attention.

13.3 Reconciliation for S/4HANA

This section displays data from the reconciliation checks in the area of Finance.

13.3.1 Reconciliation of S4 System

The data displayed in this chapter is a result of execution of the FINS_REC transaction. This transaction reconciles the General Ledger. Identified inconsistencies might have a negative impact on your daily business. Please note that, when estimating the resolution effort of the identified inconsistencies, you should refer to the number of different error types, but not the total number of errors.

Refer to SAP Note [2714344](#) for more information about the identified error types.

In your case, either the transaction had not been executed or the result could not be collected due to technical requirements not matching (SAP_BASIS <= 753). Please use the following transactions in your system to verify whether the reconciliation analysis has already been executed and inconsistencies have been detected: FINS_REC_MONITOR and FINS_REC_RESULT.

14 Data Volume Management (DVM)

Data relevant for Data Volume Management was collected on system PE4 and stored in the SDCCN download. If you gave your consent, this data has been sent to SAP for further analysis. After the analysis has finished, you can find the analysis result in [SAP for Me](#) via the link shown in the respective column in the table below.

Note: For more information about DVM cloud-based service delivery, see [Knowledge Base Article 2716655](#).

Link to SAP Support Launchpad

<https://launchpad.support.sap.com/#/dataoverview>

15 EWM Workload

Weekly Workload

Transaction	Steps	Avg. Response Time [ms]	Avg. DB Time [ms]
/SCWM/MON	22	436	197
/SCWM/RFUI (HTTP)	44	1305	368

Daily Workload

Transaction	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
/SCWM/RFUI (HTTP)				44 / 1305 / 368			

16 BW Checks for PE4



Some problems were detected, that may impair your system's performance and stability. You should take corrective action as soon as possible.

Rating Overview

Rating	Check
✓	BW Administration & Design
✓	BW Reporting & Planning
⚠	BW Warehouse Management

BW Administration & Design: Red Rated Checks

Check Name
Data Distribution

The first table above contains the ratings for the three main areas in this service. To identify what check causes one area (such as BW Administration & Design) to receive a RED rating, the individual checks with RED ratings are listed in subsequent tables with information about the check name and the main area to which the check belongs.

In general, the checks are structured in a hierarchy and, in most cases, a check with a RED rating will propagate the rating to its parent check. For this reason, it usually makes sense to follow the recommendations for the check at the lowest level in the hierarchy.

However, not all checks propagate their rating to their main check. In other words, a section can have a GREEN rating even though one of its checks has a RED rating.

16.1 BW Administration & Design

16.1.1 Data Distribution

Note that we were unable to collect data about the size of object types mentioned in the following table.

Recommendation: Make sure that you have implemented the latest ST-A/API add-on and that the download was started in the correct BW client (see [SAP Note 804713](#)).

After you have implemented ST-A/API, call transaction SE38 and (re)start the RTCCTOOL report. ST-A/API contains analysis source code in the comments (*). RTCCTOOL will recommend that you have the corresponding analysis source code uncommented (this is a two-step procedure once you have accessed RTCCTOOL).

missing objects
ODS tables
InfoCubes
Aggregates
Master data SID-tables
Master data X-tables
Master data Y-tables
Hierarchy tables (I-tables)
Validity tables (L-tables)

16.1.1.1 Largest InfoCubes

The values in the "Records" column are the sum of the number of rows in the E and F tables. If they exceed specified

threshold values, a YELLOW or RED rating will be propagated by this check in the session. The threshold values are **500,000,000** for YELLOW and **1,000,000,000** for RED.

Recommendations

The more records that are stored within an InfoCube, the more time is needed for administrative and/or maintenance tasks for the cube. Follow these guidelines to keep the number of records as small as possible and, therefore, manageable.

The more records (requests) that are stored in the F-fact table, the longer queries have to run to collect all relevant entries for their result sets. It also increases the time needed to delete and recreate secondary indexes before and after uploads into the cube, which is mandatory/advisable on some databases. Compress as many requests as possible. Depending on the cube design, this may also reduce the total number of records.

Query runtimes generally deteriorate if there are too many records, simply because the individual database tables get too big. If possible from a business perspective, archive or delete data that is no longer relevant for reporting.

If you cannot remove any records for business reasons, consider splitting one InfoCube into multiple physical objects. Split the InfoCube into multiple cubes using a suitable characteristic (time-based, region-based, and so on) and combine these cubes within a MultiProvider for reporting purposes. This concept is known as logical partitioning. On a BW release >= 7.30, you can use a semantically partitioned object (SPO) to benefit from the advantages of logical partitioning (smaller physical objects) without the maintenance overhead formerly ... Text cut, see SAP Note 3210457

16.1.2 Analysis of InfoProviders

16.1.2.1 InfoProvider Distribution

The following section provides an overview of the distribution of your InfoProviders. Only objects that are currently available for reporting are taken into account.

InfoProviders (individual)

Total	DataStore Objects	Advanced DataStore Objects	InfoCubes	InfoObjects
128	0	0	2	126

InfoProviders (collective)

Total	MultiProvider	HybridProviders	SPOs (InfoCube)	SPOs (DSO)	InfoSets
0	0	0	0	0	0

16.1.2.1.1 DataStore Objects

The table below provides an overview of the active DataStore Objects of the analyzed BW system.

Note that DataStore objects with a BEx flag = 'N' cannot be used directly in a reporting scenario but only as part of an InfoSet.

Total	DSO without BEx-flag	DSO with BEx-flag = "X"	DSOs with BEx-flag = "N"	Write-optimized DSOs	Write-optimized DSOs with BEx-flag = "N"	Direct-Update DSO
0	0	0	0	0	0	0

16.1.2.1.2 InfoCubes

The table below provides an overview of the active InfoCubes of the analyzed BW system.

Total	#InfoCube	#Realtime Cubes	#Virtual Cube	#Remote Cube
2	0	1	1	0

16.1.2.1.3 MultiProviders

The following table shows the TOP10 MultiProviders (sorted by total number of InfoProviders), including information about the number and type of their part providers. A complete list with all MultiProviders is available within the service session in your SAP Solution Manager system.

MultiProvider	Total	#IC	#PC	#VC	#RC	#DSO	#WO-DSO	#DU-DSO	#IO	#HP	#SPO-IC	#SPO-DSO	#SPO-WO-DSO	#IS
#Multi Provider (Total)	0													
#Part Provider (Total)	0													

IC - InfoCube, PC - Realtime Cube, VC - Virtual Cube, RC - Remote Cube

DSO - Standard DSO, WO-DSO - Write-optimized DSO, DU-DSO - Direct-Update DSO

IO - InfoObject

HP - Hybrid Provider

SPO-IC - SPO(InfoCubes), SPO-DSO - SPO(Standard DSOs), SPO-WO-DSO - SPO(Write-optimized DSOs)

IS - InfoSet

16.1.2.1.4 Semantic Partitioned Objects

The following table shows the TOP 10 semantically partitioned objects per type (sorted by number of partitions). A complete list with all SPOs is available within the service session in your SAP Solution Manager system.

SPO (InfoCube)	#Partitions	SPO (DSO)	#Partitions	BEx-Flag	SPO (WO-DSO)	#Partitions	BEx-Flag
Total #SPOs	0	Total #SPOs	0		Total #SPOs	0	
Total #Partitions	0	Total #Partitions	0		Total #Partitions	0	

16.1.3 Partitioning of BW Tables managed by RSTSODS

Depending on the database on which your BW system runs, several BW-specific table types will be range-partitioned automatically by the application. This mechanism applies to write-optimized DSOs, standard DSO change logs, PSA tables, and DTP error stacks.

The partitioning criterion is controlled by field PARTNO of table RSTSODS. This field is defined as numc(4), which means the range value cannot exceed 9.999. If this limitation is reached, no further INSERTs into the table are possible. As a result, further uploads into the PSA/WO-DSO or DSO activations would fail.

Possible countermeasures: [For SAP BW >= 7.30 SAP Note 2247910 - 730SP15: PSA Repartitioning](#)

[Reorganization Tool](#) introduces ABAP report RSAR_PSA_REPARTITION, which allows you to repartition these tables in order to "move" data from partitions with a high PARTNO value to those with a low value. If you want to make use of this feature, please make sure that the subsequent SAP Notes are either implemented or that you are already on the corresponding release/SP levels:

* 2551718 - 730SP19: Restart Scenario of Repartition/Reorganization PSA tool doesn't work correctly * 2688169 - 730SP19:Restart Scenario of Repartition/Reorganization PSA tool doesn't work correctly(2) * 2714214 - 730SP20: Minor problems in PSA repartitioning * 2756311 - 740SP22: Problems in PSA Service and Re-Partitioning of PSA * 2765807 - 740 SP22: Minor problems in PSA Repartition - II * 2769445 - 740 SP22: Syntax errors in SQL in Re-partition of PSA in SYBASE and MSSQL

[For SAP BW < 7.30 \(only on Oracle\)](#) You may run ABAP report SAP_PSA_PARTNO_COMPRESS to repartition the table(s). Before you do, make sure that [SAP Note 2295109 - SP34:Maximum partition '9999' reached in PSA/changelog table](#) is implemented or that you are at least on a corresponding release/SP level.

[SAP BW release and database independent](#) If none of the options above apply to your system, you have the option of dropping the table from the database and activating the corresponding object (DataSource, DSO, DTP) again, which will recreate the table with initial RSTSODS settings. However, this is only a possibility if you no longer require the data it originally contained.

If necessary, you can increase the threshold values regarding the size of the individual table partitions by using maintenance transaction RSCUSTV6. The higher the value, the less frequent a new partition will be created and the longer it will take to reach the 9.999 limit.

The table below lists the Top10 tables with PARTNO >= 5.000. If no table is displayed, there either are no such tables or the necessary data to analyze the situation was not available.

Conclusion: No table in the analyzed system exceeds 50% (5,000) of the available RSTSODS-partitions yet.

16.1.4 Number Range Buffering for BW Objects



For each characteristic and dimension, BW uses a number range to uniquely identify a value (IDs and DIM IDs). If the system creates a high number of new IDs periodically, the performance of a data load may decrease.

To avoid the high number of accesses to the NRIV table, activate Main Memory Number Range Buffering for these BW objects.

To map InfoCube dimensions to their number range objects, use table RSDDIMELOC with INFOCUBE = <InfoCube Name> to find the number range object in the NOBJECT field.

To map InfoObjects to their number range objects, use table RSDCHABASLOC with CHABASNM = <InfoObject Name>. The number range object is the value of NUMBRANR with the prefix 'BIM'.

The tables below provide an overview of the number range buffering settings of dimensions and InfoObjects, sorted in descending order by the number range level ("Level"). This information identifies candidates for activating the number range main memory buffer. The figures in the '# Rows' column are based on database statistics.

Recommendation Activate number range buffering for all dimensions and InfoObjects with a high number of rows, based on the rules in SAP Note [857998](#). Note that you must NEVER buffer the package dimension of an InfoCube nor InfoObject 0REQID (usually number range object BIM9999998).

Note Neither the number of DIM IDs in a dimension table nor the number of IDs of an InfoObject may exceed the threshold value of **2 billion** (technical limitation). Coming close to this limit indicates a problem with your dimension or InfoObject modeling. In this case, the corresponding data model should be refined. For a thorough discussion of this topic, see SAP Note [1331403](#).

This check considers an object to be critical if its number range level exceeds **1.5 billion**.

Top10 Unbuffered InfoObjects [by Number Range Level]

InfoObject	SID Table	# Rows	NR Object	NR Level
0OBJJNM	/B10/SIOBJNM	1.079	BIM9999991	1.078
0CURRENCY	/B10/SCURRENCY	214	BIM9999997	214
0INFOPROV	/B10/SINFOPROV	8	BIM9999973	8
0HIER_HIEID	/B10/SHIER_HIEID	5	BIM9999994	6
0RTYPE	/B10/SRTYPE	5	BIM9999918	5

TOP 10 Buffered InfoObjects [by Number Range Level] You currently have not activated number range buffering for any InfoObject.

16.1.5 DTP Error Handling

The first table below shows an overview of the error handling usage of the active data transfer processes in the BW system. It indicates the total number of active DTPs and the number of DTPs using the four different error handling options.

The second table shows the number of existing error DTPs as well as the number of missing and unnecessary ones. 'Missing' in this context means that a DTP uses error handling option 3 or 4 but no error DTP exists for it. This may indicate that error handling is being used inadvertently and could be deactivated to improve performance. 'Unnecessary' refers to error DTPs of which the source DTP does not use error handling. These error DTPs, therefore, could ... Text cut, see SAP Note 3210457

DTP Overview - Error Handling

# DTPs	#1 Deactivated	#2 No Update, No Reporting	#3 Update Valid Records, No Reporting	#4 Update Valid Records, Reporting Possible
0	0	0	0	0

DTP Overview - Error DTPs

# Error DTPs	# Missing Error DTPs	# Unnecessary Error DTPs
0	0	0

Recommendation:

Deactivate error handling with error stack creation if not required:

Do not use error handling with error stack creation for every upload. Use the 'No Update, No Reporting' option instead. We recommend using error handling with error stack creation only once per data flow, usually for the first DTP in a dataflow, when the potential for incorrect data delivery from the source system is highest. For further data

mart uploads, use it only where necessary (for example, with a very complex, error-prone transformation routine in a certain upload).

When using error handling with error stack creation:

Error handling with error stack creation also filters out correct records for data targets that require sorting, when semantic grouping is activated. As semantic grouping causes a sorting and re-packaging of the source packages, which allows loading in parallel packages afterwards to the data targets, it is also resource intensive. For this reason, we advise not using it in every upload where error handling with error stack creation is activated. Instead, it should be used only when it is ... Text cut, see SAP Note 3210457

Use semantic grouping when loading with error handling (and error stack) to the following targets to support parallel loading:

- InfoObject
- standard DSO or write-optimized DSO with semantic key

Do not use semantic grouping when loading with error handling (and error stack) to the following targets (as they allow parallel loading anyway):

- InfoCube
- write-optimized DSO without semantic key

Differences between option 1 'Error Handling deactivated' and option 2 'No update, no reporting'

If an incorrect record exists while using option 1 'Error Handling deactivated', the error is reported at data package level, that is, it is not possible to identify the incorrect record(s). With option 2 'No update, no reporting', the incorrect record(s) is/are highlighted so that the error can be assigned to specific data records. This makes it easier to correct the request in the source system. As neither scenario writes to the error stack, the whole request is terminated ... Text cut, see SAP Note 3210457

16.1.6 Recommendations for BW System PE4

16.1.6.1 Important SAP Notes for BW

The table below lists important SAP Notes for BW that address performance.

Important notes for BW 3.x

SAP Note Number	Description
1118754	NetWeaver 3.5 BW Frontend Patch delivery schedule
0166433	Options to find aggregates
0567747	Composite note BW 3.x performance: Extraction
0567746	Composite note BW 3.x performance: Query
0567745	Composite note BW 3.x performance: DB-specific

Important notes for BW 7.x

SAP Note Number	Description
1392715	DSO req. activation:collective perf. problem note
1331403	SIDs, Numbranges and BW Infoobjects
1162665	Changerun with very big MD-tables
1136163	Query settings in RSRT -> Properties
1106067	Low performance when opening Bex Analyzer on Windows Server
1101143	Collective note: BEx Analyzer performance
1085218	NetWeaver 7.0NetWeaver 7.x BI Frontend SP\Patch Delivery Schedule
1083175	IP: Guideline to analyze a performance problem
1061240	Slow web browser due to JavaScript virus scan
1056259	Collective Note: BW Planning Performance and Memory
1018798	Reading high data volumes from BIA

SAP Note Number	Description
968283	Processing HTTP requests in parallel in the browser
914677	Long runtime in cache for EXPORT to XSTRING
899572	Trace tool: Analyzing BEx, OLAP and planning
892513	Consulting: Performance: Loading data, no of pkg,
860215	Performance problems in transfer rules
857998	Number range buffering for DIM-IDs and SIDs
803958	Debuffering BW master data tables
550784	Changing the buffer of InfoObjects tables
192658	Setting parameters for BW systems

16.1.7 BW Statistics

Since new data is continuously loaded into the Business Warehouse(BW), the amount of data is always increasing. The structure of such data may also change. You can obtain information about data growth from the statistical data in the "BW Statistics" menu, at InfoCube, query, InfoSource, and aggregate level. These statistics also provide information about the performance of your queries.

An overview of the BW processes is essential, and more useful than a detailed view of database statistics, or even CCMS. **Background:** When you maintain the settings for the query statistics, deactivating the statistics is the same as activating the statistics internally with detail level 9. In both cases, no statistical data is written.

The settings on the "InfoProvider" tab page affect the collection of statistical data for queries, as well as the settings on the "Query" tab page (transaction RSDDSTAT). The following logic applies: If there are settings for the query (other than "Default"), the maintained statistical settings are chosen to write or not write the statistical data. Otherwise, the setting for the InfoProvider on which the query is defined, is used. If there is neither a setting for the query, nor ... Text cut, see SAP Note 3210457 For Web templates, workbooks, and InfoProviders, you can decide between activating or deactivating the statistics only. If you did not maintain settings for the individual objects, the default setting for the object is used. If you did not change the default settings, the statistics are activated.

The following table contains an overview of the current statistical settings for the different objects.

Object	Statistics activated?	Detail Level	# Objects
Query Element	X	1	97

Object	Statistics activated?	Statistics deactivated?	# Objects
Aggregation Level	X		2
Web Template	X		54
InfoProvider	X		5

16.1.7.1 BW Technical Content for Statistical Data

From NetWeaver BW 7.0, activate the technical content for the BW statistical data. You can then use many additional features, such as ST03N. Process chains are also provided to facilitate the administration of the statistical data and provide routines for automatic deletion of the RSDDSTAT* tables.

The table below provides an overview of the technical content for statistical data currently available in your system. This table provides the Basis InfoProviders and the corresponding MultiProviders and Virtual Cubes. The current object version and the date when the statistical data was last uploaded to the Basis InfoProvider are also listed. If there is no table, you have not yet imported any technical content. Upload the statistical data at least once a week.

Recommendation: Activate the technical content and upload the data regularly. For further information, see [SAP Note 934848](#), steps 1 to 5.

Basis InfoProvider	Object Version	Last Upload	MultiProvider Object Version	Virtual Cube Object Version	Long Description Basis InfoProvider
0TCT_C01	D	00.00.0000	D	D	Front-End and OLAP Statistics (Aggregated)
0TCT_C02	D	00.00.0000	D	D	Front-End and OLAP Statistics (Details)

Basis InfoProvider	Object Version	Last Upload	MultiProvider Object Version	Virtual Cube Object Version	Long Description Basis InfoProvider
0TCT_C03	D	00.00.0000	D	D	Data Manager Statistics (Details)
0TCT_C05	D	00.00.0000	D	D	OLAP Statistics: Cache type Memory Consumption
0TCT_C12	D	00.00.0000	D	D	Process Status
0TCT_C14	D	00.00.0000	D		Report Availability Status
0TCT_C15	D	00.00.0000	D		BW Data Storages with inconsistent and incomplete data
0TCT_C21	D	00.00.0000	D	D	Process Statistics
0TCT_C22	D	00.00.0000	D	D	DTP Statistics
0TCT_C23	D	00.00.0000	D	D	InfoPackage Statistics
0TCT_C25	D	00.00.0000	D		Database Volume Statistics
0TCT_C31	D	00.00.0000	D	D	BWA Statistics: CPU Consumption
0TCT_C32	D	00.00.0000	D	D	BWA Statistics: InfoProvider Memory Consumption
0TCT_CA1	D	00.00.0000	D	D	Front-End and OLAP Statistics (Highly Aggregated)

16.2 BW Reporting & Planning

16.2.1 BW Workload

16.2.1.1 Reporting and Upload Workload last week

The diagram above shows an overview of the workload distribution regarding reporting and upload activities from the last week. Note that the values shown do not reflect the actual values. In each case, we have taken the highest value and considered it to be "100". The other values show the ratio to the maximum values.
Maximum values are listed below.

Max. # Navigation Steps	Max. # Uploads
0	0

16.2.2 Analysis of Query Definition

# Queries	# Queries with Read Mode 'A'	# Queries with Read Mode 'X'	# Queries with Read Mode 'H'
98	0	7	91

You use the read mode "Query to read when you navigate or expand hierarchies" for all of your queries.

Recommendation Make sure that newly created queries use the correct read mode.

Background When a user navigates through a report, data can be read from the database in three different ways (the read modes depend on the Customizing settings):

1. Query to read all data at once ("A")
2. Query to read data during navigation ("X")
3. Query to read when you navigate or expand hierarchies ("H")

The first read mode (Query to read all data at once) may cause unnecessary data to be read from the database, decreasing the performance of your queries, so you should only use this read mode in special situations.

16.2.3 Analysis of OLAP Cache

The OLAP Cache is used for duplicated storing of query results that are often used, whereby these query results can be accessed quickly.

The tables below contain information about the size and the usage of the OLAP Cache.

16.2.3.1 Cache usage of queries

16.2.3.1.1 Defined Queries

The OLAP cache can buffer results from queries and provide them again for different users and similar queries (that is, the same queries or real subsets of them). The OLAP cache therefore reduces the workload of the DB server and decreases the response time.

The OLAP cache can store the query results with their navigation statuses in the memory of the application server; the data can also be stored in database tables and files.

When the main memory buffer (located in the export/import shared memory) overruns, the displaced data is either removed or, depending on the persistence mode, stored on the database server.

The following OLAP cache modes exist in your system:

- 0 Cache Is Inactive
- 1 Main Memory Cache Without Swapping (Default, unless 5 exists)
- 2 Main Memory Cache with Swapping
- 3 Persistent Cache per Application Server
- 4 Persistent Cache Across Each Application Server

Default Cache Mode In most cases, the optimal cache mode will be the system default.

MODE 0 - Cache is Inactive All data is read from the relevant InfoProvider and only the local cache (for navigation of the executed query, for example) is used.

MODE 1 - Main Memory Cache without Swapping New data is stored in the export/import SHM buffer until this memory area is full. If new data then has to be added to the buffer, an LRU mechanism is applied. Data used least recently is permanently removed from the buffer. If this data is requested again by a query, it must access the relevant InfoProvider on the DB server.

MODE 2 - Main Memory Cache with Swapping This works in a similar way to MODE 1. However, if the memory is full and data is removed from the cache, it is not deleted but written to a cluster table/flat file (depending on your cache persistency settings). If this data is then needed again by a query, it can be read from the cluster table/flat file, which is still quicker than reading it from the relevant InfoProvider on the DB server.

NOTE: Note that modes 1 and 2 are instance-dependent.

MODE 3 - Persistent Cache per Application Server The cache data is kept persistently in a cluster table or in flat files for each application server. The overall data quantity is only restricted by the database or file system. Swapping does not occur in the same way as with the main memory cache mode.

MODE 4 - Persistent Cache Across Each Application Server This mode is the same as the mode described above (cluster/flat file for each application server), the only difference being that the cache entries of all of the application servers in a system are used together.

NOTE: If you use a flat file as persistent storage for modes 3 or 4, select a directory that is close to the application server(s).

Number of Queries per Cache Mode

Cache Mode	# Queries
Total	99
[0] OFF	17
[] InfoProvider Setting	82

Number of InfoCubes per Cache Mode

Cache Mode	# Infocubes
[0] OFF	1
[D] Database	1

16.2.3.1.2 Defined PlanBuffers

Plan buffer queries are technical queries (naming pattern !!1<InfoProvider>) used by input-ready queries and planning functions in SAP BW Integrated Planning to read transactional data. Plan buffers are specific to one InfoProvider, which means they are used by all input-ready queries and planning functions that are based on this InfoProvider.

Special rules apply to these queries regarding the use of OLAP cache modes for the following reasons:

- 1) The plan buffer often requests extensive result sets. This can be the case for planning function executions that process a high data volume, possibly even the complete InfoProvider dataset.
- 2) The plan buffer requests data for multiple selections. This leads to a high amount of directory entries in the OLAP cache directory.

In both cases long processing times can occur if an improper cache mode is used, e.g. cache modes 1 or 2 in systems <= 7.30.

The table below shows which plan buffers (maximum of 20) in your SAP BW system use such improper cache modes or no cache at all. If no table is displayed, the analysis did not find any.

16.3 BW Warehouse Management

16.3.1 Upload Statistics

16.3.1.1 Transactional data load statistics (RSDDSTATWHM)

This section provides an overview of the execution of InfoPackages that do not only load into PSA but also (or only) into InfoProviders. Only transactional data uploads are taken into account.

We could not detect any uploads of transactional data from 02.09.2024 to 09.09.2024. This means that either no such InfoPackage was executed in the analyzed period or that the statistics are not properly collected in the system. To rule out the latter, check the activation status of the BW WHM statistics as described below.

Collection of BW Statistics: Call the Administrator Workbench (transaction RSA1) and choose Tools -> "Settings for BI Statistics", or call transaction RSDDSTAT:

--> Switch to the InfoProvider tab and activate the statistics settings.

16.3.1.2 Top DTP Load

The following table provides an overview of the load caused by data transfer processes in your BW system during the past week.

Note that the cumulated times displayed may be larger than the total times. When cumulated times are calculated, all times are added together, whereas parallel processing is considered when total times are calculated.

Total

# Sources	# Targets	# Requests	Time Total	Time Total Cum.	Time Source	Time Errorfilter	Time Transformation	Time Target	# recs. Source	# recs. Target
0	0	0	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	00:00:00	0	0

16.3.2 Process Chains - Runtime Overview

The process chain runtime analysis is based on the last 7 days before the download.

The table contains statistical information of all chains that were not started by another (local) process chain. This includes process chains that are started by the service API or remotely by a chain from another system. Note that only the top 20 chains with the longest runtimes are displayed.

The '# Total Subchains' and '# Total Steps' columns represent the summarized values of the main chain and its subchains. The runtimes have a range from the start of the main chain up to the end of the last process type executed within the main chain and its subchains. This means that the real runtime of the main chain and its subchains is displayed here.

Main Chain	#Total Sub chains	#Total Steps	#Runs	Total Run time [min]	Avg. Run time [min]	Med. Run time [min]	Avg. Proc.Type Runt. [min]
LOADS_S4_IBP_OB_AD_D_ON	0	13	30	1.360	46	47	46

16.3.3 Source System Overview

16.3.3.1 Source System Release Information

The tables below contain information about the source systems attached to the analyzed BW system. The first table lists all source systems, regardless of their type. The second table shows detailed release information about R/3 source systems while the third table is dedicated to BW source systems, which potentially include the analyzed system itself (data mart). If one of the last two tables is missing, there are no source systems of the respective type.

For at least one of the attached source systems, not all information could be retrieved during the data collection in the BW system. Check the RFC connection to these systems and their users carefully. You can identify the problematic source systems by checking the (missing) information in the tables below.

17 SAP HANA Database P4H



We have checked your SAP HANA environment and found some issues that might have a negative impact on your overall system stability and performance. Review the report carefully and implement our recommendations.

Rating	Check
⚠	SAP HANA Stability and Alerts
⚠	SAP HANA Database Configuration
⚠	SAP HANA Resource Consumption
✓	SAP HANA Workload and Performance
✓	Size and Growth
⚠	Administration

17.1 Overview

The tables below provide an overview of your current SAP HANA database configuration.

DB Version / Start Time

Current SAP HANA DB Version	Build Branch	Start Time
2.00.077.00	fa/hana2sp07	03.09.2024 09:29:32

Technical Instances

Host	Database Name	System ID	Instance	Active	Daemon	Start Time	Time Zone	Nameserver Role	Indexserver Role
Ixbell106	P4H	P4H	10	yes	yes	2024-09-03 09:29:21.377	CEST	MASTER	MASTER

Hardware Settings - General Data

Host	Physical Hostname	Manufacturer	Model
Ixbell106	Ixbell106	VMware, Inc.	VMware Virtual Platform

Hardware Settings - CPU and Memory Data

Host	CPU Type	CPU Frequency	CPU Cores	Threads	Sockets	NUMA Nodes	Physical Memory [GB]	Allocation Limit [GB]	Swap Space [GB]
Ixbell106	Intel(R) Xeon(R) Platinum 8260L CPU @ 2.40GHz	2.394	96	96	2	1	3.444,4	3.320,3	20,0

Operating System Details

Host	Operating System PPMS Name	Operating System Version	Operating System Kernel	NOFILES Limit	OPEN_FILE Limit
Ixbell106	LINUX_X86_64	SUSE Linux Enterprise Server 15 SP3	5.3.18-150300.59.106-default	1.048.576	9.223.372.036.854 .775.800

HANA Feature Usage

Usage	Installed / used	Additional data	SAP Note
Multitenant Database Containers (MDC)	Yes	System ID: P4H	2101244
Dynamic Tiering	No		2140959
Enterprise Performance Management Add-On (EPM MDS)	No		2456225
Embedded liveCache	Yes	10.1 / 014 / 001	2593571
Streaming Server	No		
Advanced Function Libraries	Yes	sap_afl_sdk_apl	
XS Advanced	No		
Embedded Statisticsserver active	Yes		2147247
System Replication	Yes		1999880
Smart Data Access (SDA)	No		2180119
Smart Data Integration (SDI)	No		2400022
Smart Data Streaming (SDS)	No		2367236
Persistent Memory	No		2700084
Fast Restart Option	No		2700084
Data Aging	No		2416490
Extension Node	No		2741690
Workload Classes	Yes		2222250
Native Storage Extension (NSE)	Yes		2775588
Multi Dimensional Expressions (MDX)	No		
Multi Dimensional Services (MDS)	No		2670064

System Replication Overview

Host	Site Name	Secondary Host	Secondary Site Name	Replication Mode	Full Sync	Operation Mode
Ixbell106	P4Hprimary	Ixbell111	P4Hsecondary	SYNCMEM	DISABLED	logreplay

HANA Update Information

Date	Version
11.05.2020	2.00.046.00.1581325702
04.02.2021	2.00.052.00.1599235305
23.10.2021	2.00.056.00.1624618329
13.11.2021	2.00.058.00.1634122452
09.09.2023	2.00.067.02.1687850758
09.03.2024	2.00.075.00.1702888292
19.05.2024	2.00.077.00.1710325774

17.2 SAP HANA Stability and Alerts

17.2.1 SAP HANA Alerts

	SAP HANA alerts have been issued for the monitored timeframe.
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SAP HANA collects system information periodically and issues alerts of different priority levels according to predefined thresholds. These alerts can be used to monitor the performance and stability of the SAP HANA database. Possible alert priorities are:

- 1 – Information
- 2 – Low
- 3 – Medium
- 4 – High
- 5 – Statistics Server Alert

The following "Alerts" table shows SAP HANA alerts that reached at least medium priority during the monitored timeframe. It also shows how often an alert was created and the highest priority for this particular alert.

The "Recommendations" table lists recommendations for the alerts found and refers to SAP KBA Notes if available. Further details and recommendations for SAP HANA alerts are available in the relevant sections of the report.

Alerts

Alert ID	Alert	No. of Occurrences	Highest Rating
59	Determines the percentage of transactions that are blocked.	2	4
36	Determines whether or not the most recent data backup was successful.	1	4
67	Determines the growth rate of rowstore tables.	1	4
39	Identifies long-running SQL statements.	52	3
136	Checks if configuration parameters are set to unsupported values.	12	3
21	Identifies internal database events.	6	3

Recommendations

Alert ID	General Recommendation	KBA
21	Resolve the event and then mark it as resolved by executing the SQL statement ALTER SYSTEM SET EVENT HANDLED '<host>:<port>' <id>. Note that this is not necessary for INFO events. See SAP Note 1977252.	1977252
36	Investigate why the last data backup failed, resolve the problem, and perform a new data backup as soon as possible. See SAP Note 1900795. For details please refer to the chapter "Administration".	1900795
39	Investigate the statement. For more information, see the table _SYS_STATISTICS.HOST_LONG_RUNNING_STATEMENTS. See SAP Note 1849392.	1849392
59	Investigate blocking and blocked transactions and if appropriate cancel some of them. See SAP Note 2081856.	
67	Try to reduce the size of row store table by removing unused data. See SAP Note 2054411. For details please refer to the chapter "Size and Growth".	2054411
136	Check if system is running in a supported state.	

Recommendation: Monitor SAP HANA alerts in the system closely to get an overview of the SAP HANA system status. React to warnings and problems visible in the alerts in due time. If you require support, create a case using the Get Support application in SAP for Me ([KBA 1296527](#)). Within case creation, select Product: Customer Project-Based Solution, and enter the component HAN-DB*.

For details, refer to the [SAP HANA Administration Guide](#) and to the SAP Note [2445867 How-To: Interpreting and Resolving SAP HANA Alerts](#).

17.2.2 SAP HANA Service Restarts

	No critical issues with SAP HANA service restarts were detected.
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We did not find critical issues with SAP HANA service restarts.

17.2.3 SAP HANA DB Availability

The SAP HANA DB availability was based on the availability of the index server as logged in the daemon trace file. No critical problems occurred regarding the availability of SAP HANA services.

17.3 SAP HANA Database Configuration

17.3.1 Parameter Recommendation

	Check parameter settings
--	--------------------------

Some parameters are not set as recommended, or there are parameters deviating from default values.

This table highlights the parameters that were checked with regard to their impact on system performance and stability.

Important SAP HANA Parameters

Location	Parameter	Layername	Current Value	Recommended Value	Rating	SAP Note
global.ini [system_replication]	logshipping_max_retention_size	DEFAULT	1048576	<between 0 and 204781>	!	2526877
global.ini [system_replication]	logshipping_snapshot_logsize_threshold	DEFAULT	3221225472	3221225472000	!	2600030
global.ini [table_placement]	max_rows_per_partition			15000000000	!	1908075
indexserver.ini [cache]	cs_statistics_cache_invalidation_by_shrinking_tables			false	!	2124112
indexserver.ini [transaction]	aggressive_gc_interval			300	!	2169283

Recommendation: Set the SAP HANA parameters to the recommended value in the table.

Be aware that for a proper tenant DB parameter setting, the parameters configured on the system DB side must also be double-checked. Otherwise, critical parameters can be set in the system DB that appear as default values on the tenant side. Default values are only reported by the parameter check if an explicit recommendation exists, therefore, critical settings can be missed by focusing only on the tenant DB parameter check.

The table "SAP HANA Parameters deviating from default" lists parameters deviating from default. These parameters do not belong to the set of recommended parameters, they represent parameters that are not set to DEFAULT value.

In the list below, there might be parameters that needed to be changed, but also parameters that were supposed to be set back to their default values (as for special settings only in certain SAP HANA revisions) but were forgotten. The purpose of this output is only to report those parameters to bring them to your attention so you can check them.

SAP HANA Parameters deviating from default

Location	Parameter	Layername	Current Value
diserver.ini [sql]	plan_cache_size	DATABASE	6000000000
global.ini [backup]	log_backup_timeout_s	SYSTEM	300
global.ini [memorymanager]	global_allocation_limit	SYSTEM	3400000
global.ini [persistence]	logshipping_max_retention_size	SYSTEM	10240
indexserver.ini [transaction]	aggresive_gc_interval	SYSTEM	300

17.3.2 SAP HANA Workload Management

●●● SAP HANA workload parameters are set in the recommended range.

Workload management in SAP HANA allows you to balance and manage all workload types for optimal throughput and response times. The available workload management parameters limit resource consumption (e.g. CPU, threads, memory) for certain operations. The recommended values depend on available memory resources and on the number of CPU threads of the database server (also referred to as number of logical CPUs). For general information, refer to SAP Note [2222250](#) (FAQ: SAP HANA Workload Management).

17.3.3 Parameters violating Value or Layer Restrictions

●●● There are parameters which violate value or layer restrictions.

The following SAP HANA parameter settings violate existing restrictions.

Location	Parameter	Layername	Current Value	Data Type	Value Range	Layer Restrictions	Kind of Violation
global.ini [inifile_checker]	interval	DATABASE	86400	BIGINT		SYSTEM	Layer Violation
global.ini [inifile_checker]	replicate	DATABASE	true	BOOLEAN		SYSTEM	Layer Violation

For value restrictions, you can compare the "Current Value" with the expected values ("Data Type", "Value Range") and

consider the following discrepancies: - Data Type = 'n/a', Value Range = 'n/a': The parameter name is either invalid or it is currently not maintained in view CONFIGURATION_PARAMETER_PROPERTIES.

- Else: The parameter value ("Current Value") doesn't match the specification (Data Type, Value Range).

For layer restrictions, you can compare the actual layer (Layer Name) with the permitted layers (Layer Restrictions) and make sure that the parameter is defined on a permitted layer.

Recommendation: See SAP Note [2186744](#) and make sure that all SAP HANA parameters are set correctly in terms of parameter name, value, and layer.

17.3.4 Disk Configuration

	There are no disk configuration issues.
--	---

Disk ID	Device ID	File system	Host	Path	Usage
1	742547	nfs	Ixbell106	/usr/sap/P4H/HDB10/backup/log/	CATALOG_BACKUP
2	326547	nfs	Ixbell106	/hana/data/P4H/	DATA
3	742547	nfs	Ixbell106	/usr/sap/P4H/HDB10/backup/data/	DATA_BACKUP
4	974498	xfs	Ixbell106	/hana/log/P4H/	LOG
5	46631	nfs4	Ixbell106	/mnt/backup/P4H/	LOG_BACKUP
6	742547	nfs	Ixbell106	/usr/sap/P4H/HDB10/Ixbell106/	TRACE

There are no disk configuration issues. Data and log data is stored on separate physical devices.

17.4 Size and Growth

Monitoring the size and growth of the HANA database is crucial for system stability and performance. In terms of stability, the growth on disk is shown. In terms of performance, the size of row and column tables as well as the size of delta areas in column tables are analyzed.

17.4.1 Disk Usage

	Percentage of free disk space > 20%
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The table below shows the disk occupancy with respect to the partitions and their usage types. If the percentage of free disk space falls below 10%, an intermediate action has to be performed. Otherwise, there is a risk of standstill in the SAP HANA database.

Disk Space

Host	Available Disk Space [GB]	Used Disk Space [GB]	Percentage of free Disk Space	Usage Types	File system	Rating
Ixbell106	16.195,17	7.050,10	56,5	DATA	nfs	
Ixbell106	327.097,86	192.329,41	41,2	LOG_BACKUP	nfs4	
Ixbell106	110,00	79,29	27,9	CATALOG_BA CKUP+DATA_ BACKUP+TRACE	nfs	
Ixbell106	249,98	12,54	95,0	LOG	xfs	

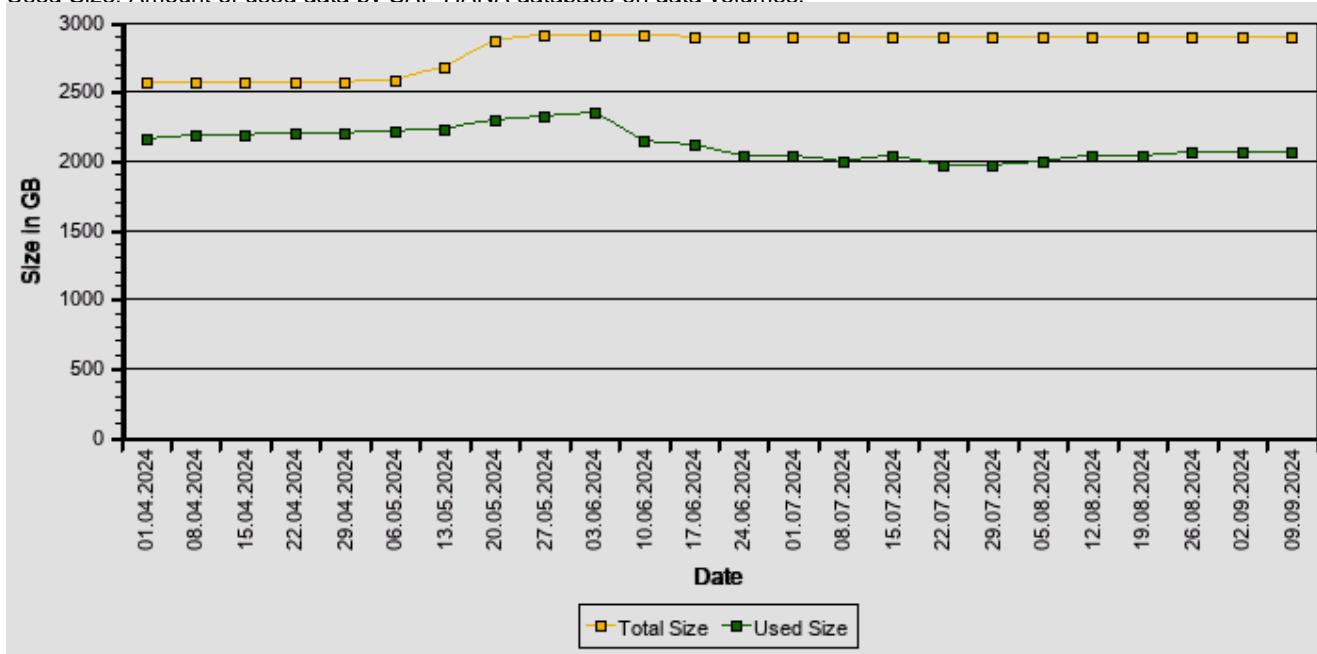
The graph shows the history of disk space usage.

17.4.2 Database Growth

The graph shows the database size and growth based on the size of data volumes.

Total Size: Amount of data allocated by SAP HANA database on data volumes.

Used Size: Amount of used data by SAP HANA database on data volumes.



To access the database growth chart in SAP EarlyWatch Alert Workspace, click [here](#).

17.4.3 Tables and Indexes

The table below displays the number of column and row tables together with their indexes.

Tables and Indexes

Objects	Number
Column Tables	171.401
Indexes of Column Tables	180.916
Row Tables	21.112

Objects	Number
Indexes of Row Tables	989

17.4.4 Size of Database Schemas

The following table lists the size of schemas in the SAP HANA database.

Size of HANA schemas

Host	Schema name	Size in MB	Store type
Ixbell106	SAPABAP1	1.696.439	Column store
Ixbell106	SYS_STATISTICS	1.652	Column store
Ixbell106	SYS_REPO	986	Column store
Ixbell106	SYS BI	12	Column store
Ixbell106	SYS_RT	3	Column store
Ixbell106	SYS_SQL_ANALYZER	2	Column store
Ixbell106	SAPABAP1	28.824	Row store
Ixbell106	SYS	2.578	Row store
Ixbell106	SAPTMF_RT_8097#DI	22	Row store
Ixbell106	SAPS4H_RT_4901#DI	5	Row store

17.4.5 LiveCache Schemas

The following table shows the largest liveCache schemas in the SAP HANA database.

Schema Name	Size (MB)
500000	467,50
OMS	160,25
500	90,50

17.4.6 SAP HANA Row Store

17.4.6.1 Row Store Size

The allocated row store size is below the technical limit.

The table below shows the size of the SAP HANA row store. The row store contains mainly SAP Basis and application statistics tables. The rating indicates whether the technical size limit will be reached in the near future.

The size of the row store generally has a direct impact on the start-up time of the SAP HANA database. This is relevant for system start-up and for recovery. We recommend that you keep the row store at an optimum size by performing housekeeping for large Basis tables (SAP Note 2388483) and, where feasible, moving large application tables from row store to column store.

Row Store Size

Host	Port	Total Size (GB)	Rating
Ixbell106	31003	55,51	

17.4.6.2 Row Store Fragmentation

The fragmentation of the row store is not critical.

The following table shows the allocated size and free page ratio (fragmentation) of the row store. The term 'fragmentation' refers to unused space in the SAP HANA row store that cannot be used for technical reasons. High fragmentation can cause performance issues and longer backup times. Row store reorganization is generally recommended if the allocated row store size is larger than 10 GB and the free page ratio is greater than 30%.

Row Store Size and Fragmentation

Host	Port	Allocated Size [MB]	Free Size [MB]	Free Page Ratio [%]	Row Store Reorganization Recommended
Ixbell106	31003	42.304	11.543	27	No

17.4.6.3 Largest Row Store Tables

The table lists the largest tables according to total disk size. The size of the memory and the number and type of LOBs are also shown. The LOBs are marked with either "H" (Hybrid) or "M" (Memory) and the number of the existing LoB columns.

Schema Name	Table Name	Total Disk Size (MB)	Size in Memory (MB)	Max Size in Memory (MB)	Nr. of Records	LOB Size (MB)	LOB Details
SAPABAP1	TST03	44.108	335	411	4.689.038	43.697	H1
SAPABAP1	FPLAYOUTT	10.212	3	4	38.651	10.209	H2
SAPABAP1	YBC_TBTCP_HIST	10.211	9.370	10.211	29.147.410	0	0
SAPABAP1	YBC_TBTCCO_HIST	6.109	5.367	6.109	15.684.426	0	0
SAPABAP1	SWNCMONI	3.251	70	76	813.750	3.175	H1
SAPABAP1	ODQDATA_F	2.090	1	1	9.308	2.089	H1
SAPABAP1	SXMSCLUP	1.776	43	45	441.265	1.731	H1
SAPABAP1	TRFCQDATA	1.361	1.229	1.361	688.194	0	0
SAPABAP1	ARFCSDATA	1.237	1.118	1.237	624.663	0	0
SAPABAP1	TBTCP	989	868	989	2.677.717	0	0

For large SAP Basis tables, remove obsolete data regularly according to SAP Note [2388483](#).

17.4.7 SAP HANA Column Store

17.4.7.1 Largest Column Tables (Size)

The table lists the largest tables according to total disk size. The size of the memory and the number and type of LOBs are also shown. The LOBs are marked with either "H" (Hybrid) or "M" (Memory) and the number of the existing LoB columns.

Schema Name	Table Name	Nr. of Partitions	Total Disk Size (MB)	Size in Memory (MB)	Max. Size in Memory (MB)	LOB Size (MB)	LOB Details
SAPABAP1	CDPOS	12	281.102	285.548	285.549	0	0
SAPABAP1	PRCD_ELEMENTS	6	171.813	175.668	175.646	0	0
SAPABAP1	ACDOCA	20	135.116	139.162	139.155	0	0
SAPABAP1	SOFFCONT1	1	100.430	202	202	100.222	H1
SAPABAP1	VBFA	4	41.663	42.146	42.145	0	0
SAPABAP1	LIPS	1	40.968	39.183	39.182	0	0
SAPABAP1	REPOLOAD	1	38.836	197	197	38.623	H2
SAPABAP1	EDID4	1	34.763	35.267	34.922	0	0
SAPABAP1	VBRP	1	30.006	28.790	28.789	0	0
SAPABAP1	ZARIXMM2	1	28.519	28.973	28.973	0	0

For large SAP Basis tables, remove obsolete data regularly according to SAP Note [2388483](#).

17.4.7.2 Largest Non-partitioned Column Tables (Records)

	The number of records in column-based table partitions is not critical.
--	---

The table below shows the largest non-partitioned column tables in terms of the number of records.

Largest Non-partitioned Column Tables According To Records

Schema Name	Table Name	Records (Total)	Weekly Record Growth [%]	Rating
SAPABAP1	ACCTCR	985.277.661	0,65	✓
SAPABAP1	EDID4	802.390.615	0,41	✓
SAPABAP1	ZARIXMM2	717.454.334	0,00	✓
SAPABAP1	SWW_CONT	653.949.860	1,11	✓
SAPABAP1	CE41000_ACCT	627.428.281	0,40	✓
SAPABAP1	/SPDGS/DP_LOG_P	509.222.278	0,33	✓
SAPABAP1	HUSSTAT	466.955.191	0,35	✓
SAPABAP1	MATDOC	458.219.352	0,65	✓
SAPABAP1	BSEG	435.751.660	0,31	✓
SAPABAP1	MATDOC_EXTRACT	428.376.897	0,69	✓

The table partitions can handle the number of the records.

17.4.7.3 Largest Column Table Partitions (Records)

	The number of records in column-based table partitions is not critical.
--	---

The table below lists the largest column table partitions in the productive schema in terms of number of entries.

Largest Partitioned Column Tables According To Records

Schema Name	Table Name	Partition ID	Records (Total)	Weekly Record Growth [%]	Rating
SAPABAP1	ACDOCA	20	1.409.281.809	0,77	✓
SAPABAP1	PRCD_ELEMENTS	4	827.650.641	0,68	✓
SAPABAP1	PRCD_ELEMENTS	2	827.584.986	0,68	✓
SAPABAP1	PRCD_ELEMENTS	6	827.190.600	0,69	✓
SAPABAP1	PRCD_ELEMENTS	3	826.074.896	0,68	✓
SAPABAP1	PRCD_ELEMENTS	1	825.762.491	0,69	✓
SAPABAP1	PRCD_ELEMENTS	5	823.783.250	0,69	✓
SAPABAP1	CDPOS	5	374.583.755	0,43	✓
SAPABAP1	CDPOS	8	374.012.170	0,51	✓
SAPABAP1	CDPOS	12	373.893.036	0,49	✓

The table partitions can handle the number of the records.

17.4.8 Native Storage Extension

The table below lists tables for which Native Storage Extension or Data Archiving is configured. It also lists on which layer (table, partition, column) the page loadable is defined.

If the loadable page is enabled on column level, the corresponding column names are listed. In case a table is listed multiple times, the configuration was done on multiple layers (e.g. column and partition).

Schema Name	Table Name	Partitions	Column	Definition of Loadable Page
SAPABAP1	/AIF/STRUC_CA_DD	0		TABLE
SAPABAP1	AAB_ID_PROPT	0		TABLE
SAPABAP1	ACLPERMIS	0		TABLE
SAPABAP1	ACMDCLSRC	0		TABLE
SAPABAP1	ACMDCLSRCT	0		TABLE
SAPABAP1	ACM_DTLOG	0		TABLE
SAPABAP1	APJ_W_JCE_GR_T	0		TABLE
SAPABAP1	APJ_W_JCE_PAR	0		TABLE
SAPABAP1	APJ_W_JCE_RO_T	0		TABLE
SAPABAP1	APJ_W_JCE_SCT_T	0		TABLE
SAPABAP1	APJ_W_JT_RO_T	0		TABLE
SAPABAP1	APOC_D_OR_LOG	0		TABLE
SAPABAP1	ARS_W_API	0		TABLE

Schema Name	Table Name	Partitions	Column	Definition of Loadable Page
SAPABAP1	ARS_W_API_SCCSSR	0		TABLE
SAPABAP1	ARS_W_API_STATE	0		TABLE
SAPABAP1	BADIIMPL_ENH	0		TABLE
SAPABAP1	BADI_CHAR_COND	0		TABLE
SAPABAP1	BADI_IMPL	0		TABLE
SAPABAP1	BADI_MAIN	0		TABLE
SAPABAP1	BADI_SPOT	0		TABLE
	The output is cut off because of too many entries.			

The largest tables according to the disk size of the loadable page are shown in the table below.

It lists the total number of partitions, the number of partitions for NSE, the total memory size (memory size in DRAM and persistent memory), the total memory size in DRAM (heap also including the loadable size of the table), the persistent memory size, the loadable size in memory, and the loadable size on disk of the tables.

Schema Name	Table Name	Total Number of Partitions	Number Partitions in NSE	Total Memory Size (MB)	Total Memory Size in DRAM (MB)	Memory Size in Persistent Memory (MB)	Memory Size of Loadable Page (MB)	Disk Size of Loadable Page (MB)
SAPABAP1	DOKTL	1	1	2.981	2.981	0	2.957	2.959,67
SAPABAP1	D010TAB	1	1	1.597	1.597	0	1.563	1.564,69
SAPABAP1	DD03L	1	1	1.275	1.275	0	1.268	1.398,11
SAPABAP1	D010INC	1	1	783	783	0	770	770,81
SAPABAP1	DD04T	1	1	458	458	0	432	432,23
SAPABAP1	DYNPSOURCE	1	1	216	216	0	215	214,58
SAPABAP1	DOKHL	1	1	203	203	0	181	202,32
SAPABAP1	D021T	1	1	183	183	0	169	195,84
SAPABAP1	COV_GEN DATA	1	1	184	184	0	181	181,09
SAPABAP1	DD02T	1	1	166	166	0	156	156,16
SAPABAP1	DOKIL	1	1	165	165	0	143	143,59
SAPABAP1	DDFIELDANNO	1	1	141	141	0	128	137,70
SAPABAP1	TADIR	1	1	159	159	0	132	132,74
SAPABAP1	DD03ND	1	1	135	135	0	127	129,82
SAPABAP1	SPROXDAT	1	1	120	120	0	118	123,71
SAPABAP1	DDCDS_CONDITION	1	1	121	121	0	109	121,72
SAPABAP1	DD07T	1	1	291	291	0	104	106,45
SAPABAP1	DD27S	1	1	97	97	0	88	102,18
SAPABAP1	DD05S	1	1	113	113	0	101	101,32
SAPABAP1	DDCDS_SELECTLIST	1	1	84	84	0	73	90,81
	The output is cut off because of too many entries.							

17.4.8.1 SAP HANA NSE Buffer Cache

The table below lists information regarding the SAP HANA NSE Buffer Cache.

Host	Port	Cache Name	State	Replacement Policy	Max. Size (GB)	Used Size (GB)	Hit Ratio (%)
Ixbell106	31003	CS	ENABLED	IMPROVED LRU	332,03	10,44	99,99

The table below shows the page behavior of the Buffer Cache.



Host	Port	Cache Name	State	Replacement Policy	Page Size (kB)	Total Size (GB)	Hot Page Size (GB)	Out of Buffer Page Size (GB)
Ixbell106	31003	CS	ENABLED	IMPROVED LRU	4	0,01	0,00	0,00
					16	0,01	0,00	0,00
					64	0,04	0,03	0,00
					256	3,30	2,60	0,00
					1.024	7,41	4,80	0,00

17.5 SAP HANA Resource Consumption

The following table shows an overview of the resource consumption of the SAP HANA instances in the monitored timeframe.

HANA Instances Overview

HANA Instance	Role	CPU Usage	Memory Usage of HANA server	Memory Usage of SAP HANA Instance	Memory Allocation of Tables	Memory Consumption Indexserver	LiveCache Usage
Ixbell106_P4H_10	MASTER	✓	✓	✓	⚠	✓	✓

Some of the SAP HANA hardware resources are not sufficient for the current workload. This may lead to performance and stability issues. Details of resource consumption issues are listed in the sections below.

17.5.1 Memory Utilization Overview for SAP HANA Instances

The following table shows the memory usage of the SAP HANA database. The table displays weekly average values for the SAP HANA memory areas:

'**Memory usage of the HANA database**' corresponds to the memory used by the entire SAP HANA database (comparable to 'DB used memory' in SAP HANA studio).

'**Global allocation limit**' is the limit for the overall memory usage of the SAP HANA instance defined by the global_allocation_limit parameter.

'**Row store size**' shows the average size of row store tables in SAP HANA memory.

'**Column store size**' shows the average size of column store tables in SAP HANA memory.

The main SAP HANA workload is handled by the SAP HANA index server. The weekly average of the hourly maximum values of the '**Memory usage of the index server**' and the '**Effective allocation limit**' of the index server are listed.

More detailed information about memory shortage on an SAP HANA instance is provided in the sections below.

Avg. memory usage by SAP HANA Instances

HANA instance	Memory usage of SAP HANA [GB]	Global allocation limit [GB]	Row store size [GB]	Column store size [GB]	Memory usage of indexserver [GB]	Effective allocation limit of indexserver [GB]
Ixbell106_P4H_10	1.996	3.320	55	1.733	2.030	3.316

17.5.2 SAP HANA Instance Ixbell106_P4H_10

17.5.2.1 CPU Usage of SAP HANA Server

●●●	No CPU bottlenecks were detected.
-----	-----------------------------------

To access the CPU usage charts in SAP EarlyWatch Alert Workspace, click [here](#).

The graphics below show the average and maximum CPU consumption per hour.



The data is obtained from the statistics tables of the SAP HANA database. If the average CPU consumption exceeds 75%, a YELLOW rating is assigned. If it exceeds the threshold of 90%, a RED rating is assigned.

We did not find any critical issues in this area.

17.5.2.2 Memory Usage of SAP HANA Server



No memory bottlenecks were detected.

To access the memory usage chart in SAP EarlyWatch Alert Workspace, click [here](#).

The following graph shows the physical memory usage during the monitored timeframe. The average and maximum memory used by SAP HANA (and possibly other processes) is compared with the available physical memory of the SAP HANA server.

No critical issues were detected in this area.

17.5.2.3 Memory Usage of SAP HANA Instance

	The memory consumption of the SAP HANA instance is not critical.
---	--

To access the memory usage chart in SAP EarlyWatch Alert Workspace, click [here](#).

The following graph shows the memory usage of the SAP HANA database instance during the monitored timeframe. The memory used by SAP HANA on the SAP HANA host is compared with the global allocation limit of the SAP HANA instance.

If the "Used SAP HANA Instance Memory" approaches the "Global Allocation Limit", data has to be unloaded from SAP HANA memory. This may affect the overall performance and stability of the SAP HANA database.

The SAP HANA memory usage should not exceed 90% of the "Global Allocation Limit".

The memory consumption of the SAP HANA instance is not critical.

17.5.2.4 Memory Allocation of Tables

	The memory usage of tables exceeds 50% of the global allocation limit of the SAP HANA instance.
---	---

This graphic shows the average memory consumption for storing row and column tables, and the memory available for



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temporary calculations and other operations.

From a SAP HANA sizing perspective, it is recommended that the memory usage for SAP HANA tables remains below 50% of the global allocation limit.

If the memory usage for SAP HANA tables reaches 70% of the global allocation limit, the remaining memory resources for temporary calculations may be too small.

The memory remaining for working operations may become critical.

Recommendation: Monitor the SAP HANA memory consumption closely. For more information about SAP HANA memory consumption and monitoring, see the SAP HANA Administration Guide, chapter "Monitoring SAP HANA systems" at http://help.sap.com/hana/SAP_HANA_Administration_Guide_en.pdf.

17.5.2.5 Memory Consumption of Indexserver



The memory consumption of the index server was not critical.

To access the memory usage chart in SAP EarlyWatch Alert Workspace, click [here](#).

The index server is the most critical component with regard to SAP HANA memory consumption and must be monitored regularly. If the memory consumption of the index server approaches the effective allocation limit, table unloads or even out-of-memory dumps may occur.

The following graph shows the memory consumption of the index server in relation to its effective allocation limit.

The memory consumption of the index server was not critical.

17.5.2.6 Main Memory Areas of SAP HANA

The following graph shows the top 5 consumers of SAP HANA memory. Additional allocators are summed up in the "Others" category. Refer to SAP Note [1999997](#) - FAQ: SAP HANA Memory for a more detailed explanation of SAP HANA memory allocation.

To access the memory usage chart in SAP EarlyWatch Alert Workspace, click [here](#).

17.5.2.7 LiveCache Usage

The following graph shows the memory consumption of the liveCache in the SAP HANA database. The memory consumption includes the persistent objects (classcontainers) and the memory, which was required for operations. This memory consumption is included in the "SYSTEM" memory area.

17.6 SAP HANA Workload and Performance

17.6.1 SAP HANA Workload

The table shows the number of SQL requests executed per second and per node (maximum 23 nodes) in your SAP HANA system in the monitored timeframe.

17.6.2 SAP HANA Response Times

The following graph shows the execution times of the SAP HANA system in the monitored timeframe aggregated from all SAP HANA nodes. The displayed "Execution Time" is the hourly average execution time obtained by the historized SQL Plan Cache.

Since the "Execution Time" in the SQL Plan Cache does not contain all response time parts, we also show in the graph below the "Sum Execution Time", which is the sum of the "Execution Time" plus preparation time and table load time. For more information, see [SAP Note 2000002](#).

The following graph shows the response time distribution of the SAP HANA system. The data is collected from the history data of the SQL Plan Cache.

Explanation of the SAP HANA response time shares:

- Preparation time – time share for plan preparation
- Open time – time share for cursor open and select
- Fetch time – time share for cursor fetch
- Lock wait time - lock wait time share for the plan
- Table load time – time share for loading tables during plan preparation (available as of SAP HANA rev. 50)

17.6.3 Delta Merges

17.6.3.1 Column Tables with Largest Delta Stores

 No problems with the delta size of column store tables were detected.

The separation into main and delta storage allows high compression and high write performance at the same time. Write operations are performed on the delta store and changes are transferred from the delta store to the main store asynchronously during delta merge.

The column store automatically performs a delta merge according to several technical limits that are defined by parameters.

If applications require more direct control over the merge process, the smart merge function can be used for certain tables (for example, BW prevents delta merges during data loading for performance reasons).

Largest Column Tables in terms of Delta size

Schema Name	Table Name	Partition ID	Memorysize in Main Store [MB]	Memorysize in Delta Store [MB]	Records in Delta Store	Sum of Records	Days since last Merge	Auto Merge On
SAPABAP1	ACDOCA	20	83.705,1	2.354,5	5.975.627	1.409.262.351	5	TRUE
SAPABAP1	BALDAT	0	16.739,3	824,1	1.551.147	42.950.115	1	TRUE
SAPABAP1	PRCD_ELEMENTS	4	27.383,6	679,1	5.965.179	827.642.101	3	TRUE
SAPABAP1	VBRP	0	28.084,3	576,3	1.432.673	164.545.382	3	TRUE
SAPABAP1	VBAP	0	21.354,9	500,1	991.593	113.373.715	3	TRUE
SAPABAP1	BSEG	0	28.570,0	461,0	978.832	435.747.553	6	TRUE
SAPABAP1	ACCTCR	0	12.819,2	432,6	5.797.000	985.262.426	7	TRUE
SAPABAP1	PRCD_ELEMENTS	1	28.335,6	424,3	3.941.844	825.752.449	2	TRUE
SAPABAP1	PRCD_ELEMENTS	6	27.405,9	419,7	3.612.252	827.181.796	2	TRUE
SAPABAP1	YBIL_LOGH	0	6.111,9	358,1	2.320.879	243.435.019	4	TRUE

17.6.3.2 Delta Merge Statistics

The SAP HANA database column store uses efficient compression algorithms to keep relevant application data in memory. Write operations on the compressed data are costly since they require the storage structure to be reorganized and the compression to be recalculated. Therefore, write operations in the column store do not directly modify the compressed data structure in the "main storage".

Instead, all changes are first written into a separate data structure called "delta storage" and synchronized with the main storage at a later point in time. This synchronization operation is called a delta merge.

Performance issues may occur in SAP HANA if there is a large amount of data in the delta storage, because read times from delta storage are considerably slower than reads from main storage.

In addition, the merge operation on a large data volume may cause bottleneck situations, since the data to be merged is held in memory twice during the merge operation.

The following graph shows the number of successful and failed delta merges in the monitored timeframe.

The following graph shows the delta merge volume from all merge types and the average delta merge time per record in the monitored timeframe:

Note: High merge duration can be a result of a high number of records to be merged or of a high-load situation in the system.

17.7 Administration

17.7.1 Diagnosis Files

 The number and size of diagnosis files is uncritical.

During operation, the SAP HANA database service writes messages and information to log files in its trace directory. The system administrator should check these files regularly and react to error messages accordingly. A large number of files may be generated, which can take up a lot of disk space and impair performance. The following table shows the number of files contained in the trace directory.

Diagnosis Files

Server	Measured Time Period	Type	Number of Files	Total Size in MB
Ixbell106	Weekly	Log	2	12,89
Ixbell106	Weekly	Trace	53	455,10
Ixbell106	Weekly	Dump	3	11,80
Ixbell106	Unlimited	TOTAL	112	748,71

We did not detect any issues with the number or size of these files.

Nevertheless, we recommend that you check the content of the trace folder in the SAP HANA database installation directory on a regular basis and delete any files that are no longer required.

17.7.2 Backup and Recovery

 Some issues for operating or administration in terms of backup/recovery have been detected.

17.7.2.1 Log Backup

Date	Weekday	Successful Log Backups	Unsuccessful Log Backups
02.09.2024	Monday	104	0
03.09.2024	Tuesday	204	1
04.09.2024	Wednesday	294	0
05.09.2024	Thursday	295	0
06.09.2024	Friday	295	0
07.09.2024	Saturday	290	0
08.09.2024	Sunday	290	0

17.7.2.2 Data Backup

Date	Weekday	Successful Data Backups	Unsuccessful Data Backups
02.09.2024	Monday	0	0
03.09.2024	Tuesday	2	1
04.09.2024	Wednesday	1	0
05.09.2024	Thursday	1	0
06.09.2024	Friday	2	0
07.09.2024	Saturday	1	0
08.09.2024	Sunday	1	0

17.7.2.3 Number of Log Segments

This graph shows the number of log segments residing on your log volume.

We found situations where the number of log segments increased significantly. A high number of free log segments is usually a consequence of an issue in the past (for example, failing log backup or savepoint delays). Therefore, SAP HANA created additional log segments and subsequently reuses them until they are manually reclaimed. A high number of non-reusable log segments results in increased log volume consumption on disk and, in the worst case, to disk full situations.

Recommendation: Check whether log backup operation and performance are appropriate.

Execute the following command in order to reclaim free log segments:

```
ALTER SYSTEM RECLAIM LOG
```

17.7.3 Global Consistency Check Run

	Global consistency check runs at least once per month.
--	--

The tables below show your setup of the consistency check runs. We differentiate between consistency check runs executed on all levels (CHECK_TABLE_CONSISTENCY('CHECK',NULL,NULL)) and consistency check runs executed on table level (CHECK_TABLE_CONSISTENCY('CHECK',<SCHEMA_NAME>,<TABLE_NAME>)) or executed by the statistics server.

Consistency Check Runs on all Levels with Action 'CHECK'

Number of successful Executions	Last Start Date
1	07.09.2024

Consistency Check Runs on Table Level with Action 'CHECK'

Number of checked Tables	Number of not verified Tables	Last Start Date
0	52388	

Table Consistency Check by Statisticsserver

Action	Time since last Run
check_delta_log, check_variable_part_sanity, check_data_container, check_variable_part_double_reference_global, check_partitioning, check_replication, check_table_container	19 Hours

The setup is in agreement with SAP's recommendation.

17.7.4 License Information

	Your license is permanent and valid.
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The following table shows information about the validity of your license. The license should be permanent and valid.

License Information

System ID	Installation Number	Expiration Date	Permanent	Valid	Product Name	Product Limit
P4H	0020256234		TRUE	TRUE	SAP-HANA	2800

17.7.5 Statisticsserver and Monitoring

	No issues with the statistics server were detected.
--	---

The table below shows KPIs relevant for monitoring stability with the embedded statistics server.

KPI	Current value	Rating
Status of the embedded Statisticsserver	Okay	✓
Alerts in the Statisticsserver are not scheduled in the expected timeframe.	0	✓
Number of tables not located on the master server	0	✓
Number of disabled alert collectors	0	✓
Number of disabled statistic collectors	0	✓
Collector_Global_Table_Persistence_S statistics idle	Idle	✓
Number of collectors with retention times < 42 days	0	✓
High number of unprocessed e-Mails	82	✓
Status of Collector HOST_CS_UNLOADS	Inactive	✓
Number of relevant inactive actions	0	✓
Number of actions with unknown state	0	✓
Number of Statisticsserver worker threads	5	✓
Historic thread samples save interval (s)	600	✓
History of M_RECORD_LOCKS collected	no	✓

17.8 Important SAP Notes for SAP HANA

	Important information is available in the SAP Notes below.
--	--

The following tables list important SAP Notes for SAP HANA.

SAP Notes for SAP HANA

SAP Note	Description
1514967	SAP HANA: Central Note
2380229	SAP HANA Platform 2.0 - Central Note
2091951	Best Practice: SAP HANA Database Backup & Restore
2021789	SAP HANA Revision and Maintenance Strategy
2000003	FAQ: SAP HANA
2600030	Parameter Recommendations in SAP HANA Environments
1837308	FAQ: Technical limitations of Infoproviders and Characteristics in BW
1911180	HANA EarlyWatch Alerts (EWA) Issues
1592925	SAP HANA Database service connections
1642148	FAQ: SAP HANA Database Backup & Recovery
1664432	DBA Cockpit: SAP HANA database as remote database
1681092	Multiple SAP HANA databases on one appliance
1661202	Support for multiple applications on SAP HANA
1650394	SAP HANA DB: Partitioning and Distribution of Large Tables
1600929	SAP BW powered by SAP HANA DB: Information
1953429	SAP HANA and SAP NetWeaver AS ABAP on one Server
1761546	SAP ERP powered by SAP HANA - Optimizations
1872170	Suite on HANA and S/4 HANA sizing report
1794297	Secondary Indexes for the business suite on HANA

SAP Note	Description
2044468	FAQ: SAP HANA Partitioning
2081591	FAQ: SAP HANA Table Distribution

SAP Notes for operating system

SAP Note	Description
2684254	SAP HANA DB: Recommended OS settings for SLES 15 / SLES for SAP Applications 15

In the following table(s), SQL statement(s) are shown for which a recommendation is provided in the next section. Details can be found in the section listed.

Expensive SQL statement causing unnecessary load

EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

Statement String	Statement Hash	Section	Rating
SELECT DISTINCT "MANDT", "LEDNR", "OBJNR", "GJAHR", ...	fe1cc628fc5184747a2f6521f5baa0d4	Top ACDOCA Statements (Elapsed Time)/SQL Statement fe1cc628fc5184747a2f6521f5baa0d4/Time Consumption/LAN ID Dependence	●●●
At least one SQL statement causes unnecessary high load on the system.			

19 SAP HANA SQL Statements in P4H

This section provides an overview of the "most expensive SQL statements". When possible, a recommendation is provided. A more detailed analysis of the SQL statements (including the possibility to choose different time windows) is supported by the "Self-Service SQL Statement Tuning" (see [SAP Note 1601951](#)). For general information on dealing with expensive SQL statements in SAP HANA, see [SAP Note 2000002](#) .

19.1 Data Quality

A download-based SQL statement analysis can be performed.

The following table provides information about the data in the SDCC download. For details, see [SAP Note 2344673](#) and its successor note [SAP Note 3347789](#).

Observation	Comment	Rating
Version of ST-PI function module: 40	This is the most recent version	

19.2 Top Statements (Elapsed Time)

This section shows the top non-internal statements according to "Total Elapsed Time". The "Total Elapsed Time" is the sum of the "Total Execution Time" and the "Total Preparation Time" from the SQL PLAN CACHE. It has a direct impact on the response time of the application calling the statement.

See the following table for details of the selection:

Database Start	03.09.2024 -- 09:29:32
Data Collection	09.09.2024 -- 06:26:01
Analysis Type	Analysis of Plan Cache
Data Source	HOST_SQL_PLAN_CACHE
Begin of Time Interval	01.09.2024 -- 23:46:51
End of Time Interval	09.09.2024 -- 00:36:53

The selected statements - identified by their "Statement Hash" - are listed in the following table. Further details of these statements can be found in the subsections.

Statement Hash	Total Elapsed Time [s]	Number of Executions	Time / Execution [us]	Records / Execution	Time / Record [us]
8b2f1074afb23d1c2cb19fcaecf67b00	404.218,9	1.105.753	365.559,9	3,4	106.480,1
e1e746510efab6b3c433909529143774	113.788,4	2.034.412	55.931,8	0,7	79.564,2
1a09d387962c36c486a876cccd1530de1	78.724,3	13.779.645	5.713,1	0,0	0,0
1e4b0471db23f73bac5fdb890a49fcfbf	56.918,8	770.209	73.900,5	1,0	74.133,9
1ed799084d3b66280a30da065a24a8ce	55.918,8	3.519	15.890.533,2	187,2	84.875,4

19.2.1 SQL Statement 8b2f1074afb23d1c2cb19fcaecf67b00

SELECT

```
/* FDA WRITE */ DISTINCT "NSDM_E_MARD_0GG" . "MATNR" , "NSDM_E_MARD_0GG" . "WERKS" ,  
"NSDM_E_MARD_0GG" . "LGORT" , "NSDM_E_MARD_0GG" . "LBBSA" , "NSDM_E_MARD_0GG" . "SOBKZ" ,  
"NSDM_E_MARD_0GG" . "STOCK_QTY" , "NSDM_E_MARD_0GG" . "STOCK_VKWRT" , "NSDM_E_MARD_0GG" .
```

```
"GJPER_MAX" , "NSDM_E_MARD_AGG" . "/CWM/STOCK_QTY"
```

FROM

```
/* Entity name: NSDM_E_MARD_AGG */ "NSDM_V_MARD_AGG" "NSDM_E_MARD_AGG" , ? AS "t_00" ("C_0"
NVARCHAR(40), "C_1" NVARCHAR
(4), "C_2" NVARCHAR(4))
```

WHERE

```
"NSDM_E_MARD_AGG" . "MANDT" = ? AND "NSDM_E_MARD_AGG" . "MATNR" = "t_00" . "C_0" AND
"NSDM_E_MARD_AGG" . "WERKS" = "t_00" . "C_1" AND "NSDM_E_MARD_AGG" . "LGORT" = "t_00" . "C_2" WITH
RANGE_RESTRICTION(CURRENT)
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	9,82
Contribution to Total Execution Time [%]	19,54
Maximal CPU Consumption per Hour [%] (06.09.2024 between 18:00 and 19:00)	4,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)

SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)

SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

SAP HANA SQL Statements in P4H -> Top Statements (CPU Peak Hour)

19.2.1.1 Analysis of Where Clause

Table	Field	Operator
?	LGORT	=
?	MANDT	=
?	MATNR	=
?	WERKS	=

19.2.1.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	404.219	365.560	569	5.924.195
PREPARATION	0	0		
LOCK DURATION	0	0		

19.2.1.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

PE4	Z_MG_BESTANDAUSND_HENFFER_1110_D	CL_NSDM_S ELECT_MAR D=====CM003	15	18.04.2021		LO-MD-MM	Materialstam m
Early	Watch Alert	Bell Schweiz AG				02.09.2024	- 08.09.2024
PE4	Z_BD_6800_STANDBY_UP DATAFLTY_DOC	CL_NSDM_S ELECT_MAR D=====CM003	15	18.04.2021	✓	LO-MD-MM	Materialstam m

SELECT

```
/* FDA READ */ "MANDT" , "KAPPL" , "OBJKY" , "KSCHL" , "SPRAS" , "PARNR" , "PARVW" , "ERDAT" , "ERUHR" ,
"ADRNR" , "NACHA" , "ANZAL" , "VSZTP" , "VSDAT" , "VSURA" , "VSURB" , "MANUE" , "DATVR" , "UHRVR" , "DATRE" ,
"USNAM" , "VSTAT" , "AKTIV" , "TCODE" , "LDEST" , "DSNAM" , "DSUF1" , "DSUF2" , "DIMME" , "DELET" , "TELFX" ,
"TELX1" , "TELTX" , "AENDE" , "REPET" , "REPID" , "PFLD1" , "PFLD2" ... Text cut, see SAP Note 3210457
```

FROM

"NAST"

WHERE

"MANDT" = ? AND "KAPPL" = ? AND "OBJKY" BETWEEN ? AND ? WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	2,65
Contribution to Total Execution Time [%]	5,50
Maximal CPU Consumption per Hour [%] (05.09.2024 between 18.00 and 19.00)	1,96

Note: The statement was identified by its statement hash can also found in other sections of this report. Materialstam
The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory
consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory
consumption of the system.

SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)

Distribution	(CPU Peak Hour)	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement		0,65	strong correlation
Memory consumption index server(s) - Threads (running) from this SQL statement		0,39	medium correlation

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	lxbell106

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	113.788	55.932	117	2.555.595
PREPARED	0	0	0	0
LOCK DURATION	0	0	0	0

This table shows details of the applications responsible for the statement. This information is based on the list of "prepared" or "active" statements, and is not necessarily complete.

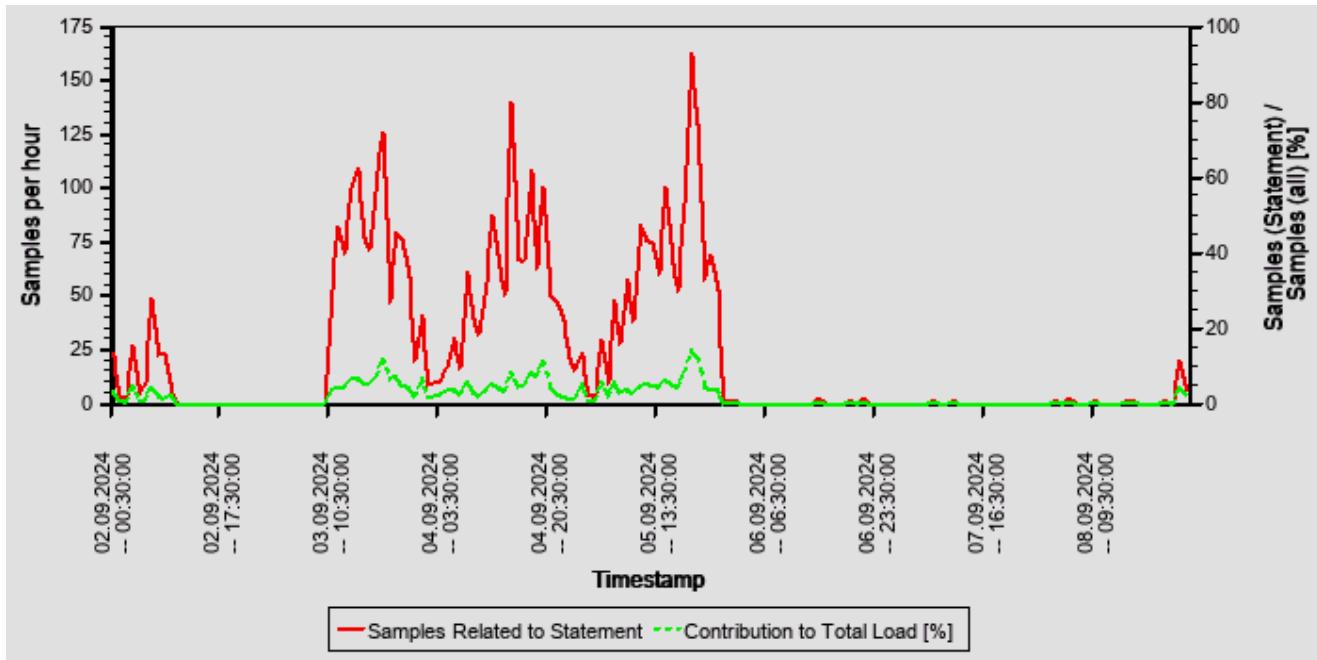
SID	Transaction / Jobname	Report	Line Last Changed on:	SAP Coding	Application Component	Description
PE4	ZDP_LFSTATN The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.	CL_NSDM_S ELECT_MAR D=====CM003	15	18.04.2021	✓	LO-MD-MM
PE4	ZLE_LIEFERUPDATE	CL_NSDM_S ELECT_MAR D=====CM003	15	18.04.2021		LO-MD-MM



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SAP HANA SQL Statements in P4H

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19.2.2.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,57	strong correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,26	weak correlation

19.2.2.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
NAST	SAPABAP1	COLUMN	Table not partitioned	173.361.704	Ixbell106

19.2.2.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

19.2.3 SQL Statement 1a09d387962c50c406a076ced1530de1

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
SELECT							
PE4	component_main.packM	LVMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung
PE4	READ_CLSNAME , REFCLSNAM	LVMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung
FROM "SCOOCLASSDF"	"CATEGORY" = 'N07' AND "REFCLSNAM	LVMSGU01	32	06.06.2015		SD-BF-OC	Nachrichtenfindung
PE4/SCWM/PRDO	"DDCDS_DIRECT_BASE_OBJECTS" . "ENTITY_NAME"	LVMSGU01	32	06.06.2015		SD-BF-OC	Nachrichtenfindung
FROM PE4/VL03N	/* Entity name: DDCDS_DIRECT_BASE_OBJECTS */ "DDCDS_G_DBO" "DDCDS_DIRECT	LVMSGU01	32	06.06.2015		SD-BF-OC	Nachrichtenfindung
WHERE EDGS_ALL_PDAO_UND_PUFFE	"DDCDS_DIRECT_BASE_OBJECTS" . "DIRECT_BASE_OBJECT_NAME" = ? AND	LVMSGU01	32	06.06.2015		SD-BF-OC	Nachrichtenfindung
"DDCDS_DIRECT_BASE_OBJECTS" . "STATE" = 'N'A') WITH RANGE_RESTRICTION('CURRENT')							
Statement Impact							
Indicator							
Contribution to Total CPU Load [%]							2,00
Contribution to Total Execution Time [%]							3,81
Maximal CPU Consumption per Hour [%] (03.09.2024 between 11:00 and 12:00)							1,54
Note: The statement as identified by its statement hash can also be found in other sections of this report:							
Other Sections Dealing with this Statement							
SAP HANA SQL Statements in P4H -> Top Statements (CPU Peak Hour)							

19.2.3.1 Analysis of Where Clause

Table	Field	Operator
?	CATEGORY	=
?	DIRECT_BASE_OBJECT_NAME	=
?	REFCLSNAM	IN
?	STATE	=

19.2.3.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	78.724	5.713	2.554	495.430
PREPARATION	0	0		
LOCK DURATION	0	0		

19.2.3.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.2.4 SQL Statement 1e4b0471db23f73bac5fbd890a49fcfb

EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

SELECT

```
"MANDT" , "MATNR" , "WERKS" , "LFGJA" , "LFMON" , "UMLMC" , "TRAME" , "VKUMC" , "VKTRW" , "GLGMR" ,
"VKGLG" , "BWESB" , "/CWM/UMLMC" , "/CWM/TRAME" , "/CWM/BWESB"
```

FROM

```
/* Redirected table: MARCH */ "NSDM_V_MARCH" "MARCH"
```

WHERE

```
"MANDT" = ? AND "MATNR" = ? AND "WERKS" = ? AND "LFGJA" = ? AND "LFMON" = ? WITH
RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	2,96
Contribution to Total Execution Time [%]	2,75
Maximal CPU Consumption per Hour [%] (06.09.2024 between 20:00 and 21:00)	1,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)

SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)

SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

19.2.3.4 Correlation with Index Server Resource Consumption

19.2.4.1 Analysis of Where Clause

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Table	Field	Operator	Supported by Single Column Index	Compression	Distinct Values	SCANNED RECORD COUNT	INDEX LOOKUP COUNT	Correlation Coefficient	Comment
MATDOC_E	LFGJA	=	server(s)	Threads (running) from this SQL statement				0,49	medium correlation
MATDOC_E	LFMON	=	server(s)	Threads (running) from this SQL statement				0,27	weak correlation
MATDOC_E	MANDT	=				18.578.493.5	0		
MATDOC_E	MATNR	=				86			

19.2.4.5 Tables

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
DDTYPES	SAPABAP1	COLUMN	Table not partitioned	2.667.440	Ixbell106
SEOCLASSDF	SAPABAP1	COLUMN	Table not partitioned	592.281	Ixbell106
DD25L	SAPABAP1	COLUMN	Table not partitioned	158.047	Ixbell106
The following table gives an overview of the time consumption of the analyzed SQL statement.				744.150.903	32
XTRACT	WERKS	=		406	

19.2.4.2 Time Consumption

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	56.919	73.900	1.782	407.221
PREPARATION	0	0		
LOCK DURATION	0	0		

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

19.2.4.3 Origin of SQL Statement

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
BE47_SP_6100_ORDERS	OUT_6100_HOME	OL_ABAP_B EHV_EJOB= =====CM006	29	16.12.2022		PG_ABAP_A	ABAP-Syntax , Compiler, Laufzeit



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PE4	Z_PAR_5800_PULL_PPS2SAP	LMG22U42	71	20.11.2020		LO-MD-MM	Materialstam m
EarlyWatch Alert	Bell Schweiz AG					02.09.2024 - 08.09.2024	

19.2.5 SQL Statement 1ed799084d3b66280a30da065a24a8ce

```

SELECT
/* FDA WRITE */ DISTINCT "LIPS" . "VBELN" , "LIPS" . "POSNR"
FROM
( "LIPS" INNER JOIN "LIKp" ON "LIPS" . "MANDT" = "LIKp" . "MANDT" AND "LIKp" . "VBELN" = "LIPS" . "VBELN" INNER
JOIN "/SPDGS/DP_LTPO" ON "LIPS" . "MANDT" = "/SPDGS/DP_LTPO" . "MANDT" AND "/SPDGS/DP_LTPO" . "VBELN"
= "LIPS" . "VBELN" AND "/SPDGS/DP_LTPO" . "POSNR" = "LIPS" . "POSNR" INNER JOIN "/SPDGS/DP_LTTRT" ON
"LIPS" . "MANDT" = "/SPDGS/DP_LTTRT" . "MANDT" AND "/SPDGS/DP_LTTRT" . "LTRNR" = "/SPDGS/DP_LTPO" .
"LTRNR" LEFT OUTER JOIN "LIPS" "LIPS_SPLIT" ON "LIPS" . "MANDT" = "LIPS_SPLIT" . "MANDT" ... Text cut, see
SAP Note 3210457
S "t_00" ("C_0" NVARCHAR(10))
WHERE
"LIPS" . "MANDT" = ? AND "LIPS" . "VBELN" = "t_00" . "C_0" AND "LIPS" . "POSNR" < N'900000' AND ( "LIPS" . "KOSTA"
<> N'C' OR "LIPS" . "PKSTA" <> N'C' ) AND NOT "LIPS" . "/SPDGS/BERNR" = ? AND "LIKp" . "KOSTK" <> ? AND (
"LIKp" . "KOSTK" <> N'C' OR "LIKp" . "PKSTK" <> N'C' ) AND ( "LIPS_SPLIT" . "POSNR" IS NULL OR "LIPS_SPLIT" .
"PKSTA" <> N'C' ) AND NOT EXISTS ( SELECT ... Text cut, see SAP Note 3210457
FROM
"LIPS" "LIPS_SPLIT_KOSTA_CHK"
WHERE
"19.2.4.4 Correlation with Index Server Resource Consumption
" "LIPS_SPLIT_KOSTA_CHK" . "MANDT" = ? AND "LIPS_SPLIT_KOSTA_CHK" . "VBELN" = "LIPS" . "VBELN" AND
"LIPS_SPLIT_KOSTA_CHK" . "UECHA" = "LIPS" . "POSNR" AND "LIPS_SPLIT_KOSTA_CHK" . "KOSTA" <> N'C' ) AND
NOT EXISTS ( SELECT * FROM
"/SPDGS/DP_LTPO" "LTPO_CHK"
Distribution Correlation Coefficient Comment
WHERE
CPU consumption index server(s) - Threads (running) from this SQL Statement 0,27 weak correlation
"LTPO_CHK" . "MANDT" = ? AND "LTPO_CHK" . "VBELN" = "LIPS" . "VBELN" AND "LTPO_CHK" . "DPS_STATUS" < ? OR "LTPO_CHK" . "DPS_STATUS" > ? OR EXISTS ( SELECT *
Memory consumption index server(s) - Threads (running) from this SQL Statement 0,46 medium correlation
FROM
"/SPDGS/DP_LTTRT"
WHERE

```

19.2.4.5 Tables
~~"SPDGS/DP_LTTRT" . "MANDT" = ? AND "/SPDGS/DP_LTTRT" . "LTRNR" = "LTPO_CHK" . "LTRNR" AND (
"/SPDGS/DP_LTTRT" . "DPS_STATUS" < ? OR "/SPDGS/DP_LTTRT" . "DPS_STATUS" > ? OR "/SPDGS/DP_LTTRT" .
"PROPL_VORNR" < 20 OR "/SPDGS/DP_LTTRT" . "PROPL_VORNR" > 20) WITH RANGE RESTRICTION(CURRENT)~~
In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Statement Impact	Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
Max	MDocs_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106 Value
Contribution to Total CPU Load [%]						3,55
Contribution to Total Execution Time [%]						2,70
Maximal CPU Consumption per Hour [%] (02.09.2024 between 04:00 and 05:00)						1,29
Maximal Memory Consumption [%] (08.09.2024 - 14:00:47)						0,20
The following table shows details of the applications responsible for the statement. This information is based on the statements provided by SAP HANA. In this table, the source can also be noted in the statement in the "Thread Samples" or the list of "prepared" or "active" statements, and is not necessarily complete.						

SID	Transaction / Jobname	Report	Line	Last (Total Memory)	SAP Coding	Application Component	Description
SAP	HANA SQL Statements in P4H -> Top	Statements		Changed on:			
PE4	Z_PAR_5800 START CIF FAULTY DOC	LMG22U42	71	20.11.2020 (Maximal Memory in Trace)	✓	LO-MD-MM	Materialstam m
PE4	Z_DGS_ALL_PDAO_UND_PUFFE	LMG22U42	71	20.11.2020		LO-MD-MM	Materialstam m

Table	Field	Operator	Scanned Record Count	Index Lookup Count
/SPDGS/DP_LTPO	DPS_STATUS	<	43.763.553.446	0
/SPDGS/DP_LTPO	DPS_STATUS	>	43.763.553.446	0
/SPDGS/DP_LTPO	MANDT	=	58.733	1.578
/SPDGS/DP_LTPO	POSNR	=	1.233.968.357.092	1.346

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
/SPDGS/DP_LTPO	VBELN	=	17.668.498.790	50.888
/SPDGS/DP_LTTRT	DPS_STATUS	<	13.742.433.748	0
/SPDGS/DP_LTTRT	DPS_STATUS	>	13.742.433.748	0
/SPDGS/DP_LTTRT	LTRNR	=	800.629.565.648	4.705
/SPDGS/DP_LTTRT	MANDT	=	5.267	606
/SPDGS/DP_LTTRT	PROPL_VORNR	<	16.088.335.804	0
/SPDGS/DP_LTTRT	PROPL_VORNR	>	16.088.335.804	0
LIKPK	KOSTK	<>	149	0
LIKPK	PKSTK	<>	0	0
LIPS	/SPDGS/BERNR	=	362.847.821	0
LIPS	KOSTA	<>	2.675.213.835	0
LIPS	MANDT	=	1.026.725.156	25
LIPS	PKSTA	<>	189.457.314	0
LIPS	POSNR	<	184.023.485	78
LIPS	UECHA	=	11.605.803.223	0
LIPS	VBELN	=	340.896.160.916	290.987

19.2.5.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	55.910	15.888.034	13.417.395	35.549.070
PREPARATION	9	2.499		
LOCK DURATION	0	0		

19.2.5.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.2.5.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory

or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,18	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,53	strong correlation

19.2.5.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
/SPDGS/DP_LTPO	SAPABAP1	COLUMN	Table not partitioned	252.737.741	Ixbell106
LIPS	SAPABAP1	COLUMN	Table not partitioned	177.905.317	Ixbell106
/SPDGS/DP_LTTRT	SAPABAP1	COLUMN	Table not partitioned	123.009.545	Ixbell106
LIKPI	SAPABAP1	COLUMN	Table not partitioned	28.236.497	Ixbell106

19.2.5.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	ZLELIEFUPD	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	ZLE_LIEFERUPDATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_1100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_1110_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_5200_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_1200_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_6100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_7100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_BFG_PRODE GA_VON_FSJ_TK	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution

19.3 Top ACDOCA Statements (Elapsed Time)

This section shows the top non-internal statements according to "Total Elapsed Time". The "Total Elapsed Time" is the sum of the "Total Execution Time" and the "Total Preparation Time" from the SQL PLAN CACHE. It has a direct impact on the response time of the application calling the statement.

Only statements accessing table ACDOCA are shown.

See the following table for details of the selection:

Database Start	03.09.2024 -- 09:29:32
Data Collection	09.09.2024 -- 06:26:01
Analysis Type	Analysis of Plan Cache
Data Source	HOST_SQL_PLAN_CACHE
Begin of Time Interval	01.09.2024 -- 23:46:51



End of Time Interval

09.09.2024 -- 00:36:53

The selected statements - identified by their "Statement Hash" - are listed in the following table. Further details of these statements can be found in the subsections.

Statement Hash	Total Elapsed Time [s]	Number of Executions	Time / Execution [us]	Records / Execution	Time / Record [us]
fe58fdb9c5186c91129bcb34b1e3cf59	15.097,5	100.402	150.371,0	8,8	17.180,9
a22b3830a2f99c1e2ca047a360b8a726	14.788,1	100.405	147.284,3	3,3	44.927,8
fe1cc628fc5184747a2f6521f5baa0d4	6.547,7	86.624	75.587,7	6,5	11.565,6
4b16d586f03f44c13a09f85d9ea3c97f	6.409,7	30	213.657.356,8	59.329,0	3.601,2
a101fba8d0c1d91c7f6559d73670b4cb	6.372,2	86.625	73.560,6	2,1	35.385,1

19.3.1 SQL Statement fe58fdb9c5186c91129bcb34b1e3cf59

SELECT DISTINCT

"MANDT" , "LEDNR" , "OBJNR" , "GJAHR" , "WRTTP" , "VERSN" , "KSTAR" , "HRKFT" , "VRGNG" , "VBUND" , "PARGB" , "BEKNZ" , "TWAER" , "PERBL" , "MEINH" , "WTG001" , "WTG002" , "WTG003" , "WTG004" , "WTG005" , "WTG006" , "WTG007" , "WTG008" , "WTG009" , "WTG010" , "WTG011" , "WTG012" , "WTG013" , "WTG014" , "WTG015" , "WTG016" , "WOG001" , "WOG002" , "WOG003" , "WOG004" , "WOG005" , "WOG006" , "WOG007" , "WOG008" , "WOG009" ... Text cut, see SAP Note 3210457

FROM

"COSP"

WHERE

"MANDT" = ? AND "LEDNR" = ? AND "OBJNR" IN (?) AND "WRTTP" IN (?, ?) AND "VERSN" = ? AND "PERBL" = ?
WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	0,40
Contribution to Total Execution Time [%]	0,73
Maximal CPU Consumption per Hour [%] (03.09.2024 between 13:00 and 14:00)	1,37

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (CPU Peak Hour)

19.3.1.1 Analysis of Where Clause

Table	Field	Operator
?	LEDNR	=
?	MANDT	=
?	OBJNR	IN
?	PERBL	=
?	VERSN	=
?	WRTTP	IN

19.3.1.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	15.092	150.320	89.594	394.826
PREPARATION	5	51		
LOCK DURATION	0	0		

19.3.1.3 Thread Distribution

The following table(s) shows both (if available) the "thread distribution" in terms of "thread state" and for thread samples in state "Running" (that is consuming CPU resources) the distribution of thread type and method. The information is obtained from the view HOST_SERVICE_THREAD_SAMPLES in the time interval analyzed. By this, some insight is given to the internal activities when the statement is processed, helping to understand which activities are responsible for the resource and/or time consumption.

For more information concerning threads and thread samples, see also [SAP Note 2114710](#).

Thread State	Area	Samples
Mutex Wait	Lock	909
Job Exec Waiting	Idle	628
Running	SQL	574
ExclusiveLock Enter	Lock	2
SharedLock Enter	Lock	1

Thread Type (Thread Method) when THREAD_STATE = "Running"	Samples
JobWorker (PlanExecutor calc)	556
JobWorker (ParallelIndexSearchJob)	9
SqlExecutor (ExecutePrepared)	6
JobWorker (generic)	3

The following table shows the "thread distribution" in terms of "thread detail" and for all thread samples.

Thread Type	Thread Method	Thread Detail	Samples
SqlExecutor	ExecutePrepared	SELECT DISTINCT "MANDT", "LEDNR", "OBJNR", "GJAHR", "WRTTP", "VERSN", "KSTAR", "HRKFT", "VRGNG", "VBUND", "PARGB", "BEKNZ", "TWAER", "PERBL", "MEINH", "WTG001", "WTG002", "WTG003", "WTG004", "WTG005", "WTG006", "WTG007", "WTG00	339
JobWorker	ParallelIndexSearchJob	Search index of attribute	9
JobWorker	generic	?	2
JobWorker	PlanExecutor calc	plan40361442@lxbell106:31 003/pop19 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40494467@lxbell106:31 003/pop19 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40361438@lxbell106:31 003/pop0 (RowPlanOperator)	1
JobWorker	PlanExecutor calc	plan40400284@lxbell106:31 003/pop19 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40400281@lxbell106:31 003/pop0 (RowPlanOperator)	1
JobWorker	PlanExecutor calc	plan40215200@lxbell106:31 003/pop0 (RowPlanOperator)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop39 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop35 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop33 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop75 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40270102@lxbell106:31 003/pop0 (RowPlanOperator)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop57 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop60 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop79 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop31 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop32 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40244422@lxbell106:31 003/pop28 (JEEvalPrecond)	1
OTHERS	OTHERS	OTHERS	1747

A high number of thread samples related to this SQL statement indicates high lock activity (see [SAP Note 2114710](#) question (6) "How can I interpret the thread state?").



Recommendation: Analyze and - if possible - avoid the locking situations. For further information, see SAP Note 1999998

19.3.1.4 Statement History (All Thread Samples)

The following graph shows the number of threads, both for state "Running" and for all other thread states. Threads in state "Running" are responsible for the CPU consumption due to the statements. Non-running threads could be "idle", but might also indicate network or I/O issues or locking situations.

19.3.1.5 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.3.1.6 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the



system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,33	medium correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,09	no significant correlation

19.3.1.7 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
ACDOCA	SAPABAP1	COLUMN	RANGE	2.704.162.085	Ixbell106
COEP	SAPABAP1	COLUMN	HASH	281.416.660	Ixbell106
COSP_BAK	SAPABAP1	COLUMN	Table not partitioned	13.470.376	Ixbell106
FINSC_CMP_VERSND	SAPABAP1	COLUMN	Table not partitioned	135	Ixbell106
T000	SAPABAP1	COLUMN	Table not partitioned	6	Ixbell106

19.3.1.7.1 Partition of Table ACDOCA

The partitioning was performed with the following specification:

RANGE FISCYEARPER 2016012-2017003,2017003-2017006,2017006-2017009,2017009-2017012,2017012-2018003,2018003-2018006,2018006-2018009,2018009-2018012,2018012-2019003,2019003-2019006,2019006-2019012,2019012-2020003,2020003-2020006,2020006-2020009,2020009-2020012,2020012-2021003,2021003-2021006,2021006-2021009,2021009-2021012,*
--

The following tables show the number of entries for each partition together with the host on which the partition is located.

Partition ID	Value of field FISCYEARPER	Number of Records	Host
1	2016012-2017003	14.757.360	Ixbell106
2	2017003-2017006	16.793.361	Ixbell106
3	2017006-2017009	17.562.573	Ixbell106
4	2017009-2017012	16.781.508	Ixbell106
5	2017012-2018003	21.685.034	Ixbell106
6	2018003-2018006	18.801.162	Ixbell106
7	2018006-2018009	19.289.084	Ixbell106
8	2018009-2018012	18.719.202	Ixbell106
9	2018012-2019003	66.552.098	Ixbell106
10	2019003-2019006	89.065.258	Ixbell106
11	2019006-2019012	177.100.527	Ixbell106
12	2019012-2020003	86.891.381	Ixbell106
13	2020003-2020006	92.450.798	Ixbell106
14	2020006-2020009	93.636.892	Ixbell106
15	2020009-2020012	92.797.559	Ixbell106
16	2020012-2021003	89.990.326	Ixbell106
17	2021003-2021006	100.942.026	Ixbell106
18	2021006-2021009	135.074.300	Ixbell106
19	2021009-2021012	125.992.059	Ixbell106
20		1.409.279.577	Ixbell106

19.3.1.7.2 Partition of Table COEP

The partitioning was performed with the following specification:

HASH 6 BELNR

The following tables show the number of entries for each partition together with the host on which the partition is located.



Partition ID	Partition - hashing BELNR	Number of Records	Host
1	1	46.867.376	Ixbell106
2	2	46.865.435	Ixbell106
3	3	47.002.903	Ixbell106
4	4	46.894.263	Ixbell106
5	5	46.918.398	Ixbell106
6	6	46.868.285	Ixbell106

19.3.1.8 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	LKARSF21	391	31.01.2018	✓	CO-OM	Gemeinkosten-Controlling

19.3.2 SQL Statement a22b3830a2f99c1e2ca047a360b8a726

SELECT DISTINCT

"MANDT" , "LEDNR" , "OBJNR" , "GJAHR" , "WRTTP" , "VERSN" , "KSTAR" , "HRKFT" , "VRGNG" , "PAROB" , "USPOB" , "BEKNZ" , "TWAER" , "PERBL" , "MEINH" , "WTG001" , "WTG002" , "WTG003" , "WTG004" , "WTG005" , "WTG006" , "WTG007" , "WTG008" , "WTG009" , "WTG010" , "WTG011" , "WTG012" , "WTG013" , "WTG014" , "WTG015" , "WTG016" , "WOG001" , "WOG002" , "WOG003" , "WOG004" , "WOG005" , "WOG006" , "WOG007" , "WOG008" , "WOG009" ... Text cut, see SAP Note 3210457

FROM

"COSS"

WHERE

"MANDT" = ? AND "LEDNR" = ? AND "OBJNR" IN (?) AND "WRTTP" IN (? , ?) AND "VERSN" = ? AND "PERBL" = ?
WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	0,44
Contribution to Total Execution Time [%]	0,71
Maximal CPU Consumption per Hour [%] (03.09.2024 between 13:00 and 14:00)	1,85

19.3.2.1 Analysis of Where Clause

Table	Field	Operator
?	LEDNR	=
?	MANDT	=
?	OBJNR	IN
?	PERBL	=
?	VERSN	=
?	WRTTP	IN

19.3.2.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	14.782	147.225	84.423	276.843
PREPARATION	6	59		

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
LOCK DURATION	0	0		

19.3.2.3 Thread Distribution

The following table(s) shows both (if available) the "thread distribution" in terms of "thread state" and for thread samples in state "Running" (that is consuming CPU resources) the distribution of thread type and method. The information is obtained from the view HOST_SERVICE_THREAD_SAMPLES in the time interval analyzed. By this, some insight is given to the internal activities when the statement is processed, helping to understand which activities are responsible for the resource and/or time consumption.

For more information concerning threads and thread samples, see also [SAP Note 2114710](#).

Thread State	Area	Samples
Mutex Wait	Lock	937
Running	SQL	636
Job Exec Waiting	Idle	589
Thread Type (Thread Method) when THREAD_STATE = "Running"		
JobWorker (PlanExecutor calc)		613
JobWorker (ParallelIndexSearchJob)		11
SqlExecutor (ExecutePrepared)		10
JobWorker		1
Others		1

The following table shows the "thread distribution" in terms of "thread detail" and for all thread samples.

Thread Type	Thread Method	Thread Detail	Samples
SqlExecutor	ExecutePrepared	SELECT DISTINCT "MANDT" , "LEDNR" , "OBJNR" , "GJAHR" , "WRTPP" , "VERSN" , "KSTAR" , "HRKFT" , "VRGNG" , "PAROB" , "USPOB" , "BEKNZ" , "TWAER" , "PERBL" , "MEINH" , "WTG001" , "WTG002" , "WTG003" , "WTG004" , "WTG005" , "WTG006" , "WTG007" , "WTG00	319
JobWorker	ParallelIndexSearchJob	Search index of attribute	11
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop133 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop92 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop131 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop89 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop95 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop84 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop132 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop137 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop129 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998839@lxbell106:31 003/pop0 (RowPlanOperator)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop77 (JEStep4)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop70 (JEStep4)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop135 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop106 (JEStep3b)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop74 (JEStep4)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop83 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop73 (JEStep4)	1
JobWorker	PlanExecutor calc	plan39998854@lxbell106:31 003/pop148 (JEStep3b)	1
OTHERS	OTHERS	OTHERS	1814

A high number of thread samples related to this SQL statement indicates high lock activity (see [SAP Note 2114710](#) question (6) "How can I interpret the thread state?").

Recommendation: Analyze and - if possible - avoid the locking situations. For further information, see [SAP Note 1999998](#)

19.3.2.4 Statement History (All Thread Samples)



The following graph shows the number of threads, both for state "Running" and for all other thread states. Threads in state "Running" are responsible for the CPU consumption due to the statements. Non-running threads could be "idle", but might also indicate network or I/O issues or locking situations.

19.3.2.5 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.3.2.6 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,31	medium correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,08	no significant correlation

19.3.2.7 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
ACDOCA	SAPABAP1	COLUMN	RANGE	2.704.162.085	Ixbell106
COEP	SAPABAP1	COLUMN	HASH	281.416.660	Ixbell106
COSS_BAK	SAPABAP1	COLUMN	Table not partitioned	4.738.312	Ixbell106
FINSC_CMP_VERSND	SAPABAP1	COLUMN	Table not partitioned	135	Ixbell106
T000	SAPABAP1	COLUMN	Table not partitioned	6	Ixbell106

19.3.2.7.1 Partition of Table ACDOCA

The partitioning was performed with the following specification:

RANGE FISCYEARPER 2016012-2017003,2017003-2017006,2017006-2017009,2017009-2017012,2017012-2018003,2018003-2018006,2018006-2018009,2018009-2018012,2018012-2019003,2019003-2019006,2019006-2019012,2019012-2020003,2020003-2020006,2020006-2020009,2020009-2020012,2020012-2021003,2021003-2021006,2021006-2021009,2021009-2021012,*
--

The following tables show the number of entries for each partition together with the host on which the partition is located.

Partition ID	Value of field FISCYEARPER	Number of Records	Host
1	2016012-2017003	14.757.360	Ixbell106
2	2017003-2017006	16.793.361	Ixbell106
3	2017006-2017009	17.562.573	Ixbell106
4	2017009-2017012	16.781.508	Ixbell106
5	2017012-2018003	21.685.034	Ixbell106
6	2018003-2018006	18.801.162	Ixbell106
7	2018006-2018009	19.289.084	Ixbell106
8	2018009-2018012	18.719.202	Ixbell106
9	2018012-2019003	66.552.098	Ixbell106
10	2019003-2019006	89.065.258	Ixbell106
11	2019006-2019012	177.100.527	Ixbell106
12	2019012-2020003	86.891.381	Ixbell106
13	2020003-2020006	92.450.798	Ixbell106
14	2020006-2020009	93.636.892	Ixbell106
15	2020009-2020012	92.797.559	Ixbell106
16	2020012-2021003	89.990.326	Ixbell106
17	2021003-2021006	100.942.026	Ixbell106
18	2021006-2021009	135.074.300	Ixbell106
19	2021009-2021012	125.992.059	Ixbell106
20		1.409.279.577	Ixbell106

19.3.2.7.2 Partition of Table COEP

The partitioning was performed with the following specification:

HASH 6 BELNR

The following tables show the number of entries for each partition together with the host on which the partition is located.

Partition ID	Partition - hashing BELNR	Number of Records	Host
1	1	46.867.376	Ixbell106

Partition ID	Partition - hashing BELNR	Number of Records	Host
2	2	46.865.435	lxbell106
3	3	47.002.903	lxbell106
4	4	46.894.263	lxbell106
5	5	46.918.398	lxbell106
6	6	46.868.285	lxbell106

19.3.2.8 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	LKARSF22	392	31.01.2018	✓	CO-OM	Gemeinkosten-Controlling

19.3.3 SQL Statement fe1cc628fc5184747a2f6521f5baa0d4

SELECT DISTINCT

"MANDT" , "LEDNR" , "OBJNR" , "GJAHR" , "WRTTP" , "VERSN" , "KSTAR" , "HRKFT" , "VRGNG" , "VBUND" , "PARGB" , "BEKNZ" , "TWAER" , "PERBL" , "MEINH" , "WTG001" , "WTG002" , "WTG003" , "WTG004" , "WTG005" , "WTG006" , "WTG007" , "WTG008" , "WTG009" , "WTG010" , "WTG011" , "WTG012" , "WTG013" , "WTG014" , "WTG015" , "WTG016" , "WOG001" , "WOG002" , "WOG003" , "WOG004" , "WOG005" , "WOG006" , "WOG007" , "WOG008" , "WOG009" ... Text cut, see SAP Note 3210457

FROM

"COSP"

WHERE

"MANDT" = ? AND "LEDNR" = ? AND "OBJNR" IN (?) AND "GJAHR" BETWEEN ? AND ? AND "WRTTP" = ? AND "VERSN" = ? AND "PERBL" = ? WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	0,18
Maximal CPU Consumption per Hour [%] (04.09.2024 between 12:00 and 13:00)	1,00

19.3.3.1 Analysis of Where Clause

Table	Field	Operator
?	GJAHR	BETWEEN
?	LEDNR	=
?	MANDT	=
?	OBJNR	IN
?	PERBL	=
?	VERSN	=
?	WRTTP	=

19.3.3.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	6.539	75.485	2.375	431.262
PREPARATION	9	103		
LOCK DURATION	0	0		

The data in the following table (obtained from data in HOST_SQL_PLAN_CACHE) seem to indicate that the average execution time (subtracted by the average lock duration) depends on the execution plans: whenever an execution plan is calculated again, it would get a new PLAN_ID (i.e., we can have situations that the different values for PLAN_ID are related to the identical plan – but we won't have a situation that different execution plans share the same PLAN_ID).

PLAN_ID	Active from: Date	Hour	Active until: Date	Hour	Executions	Records/Executions	Average (Execution - Lock) Time [us]
491500002	03.09.2024	14	03.09.2024	16	38.431	3,8	32.932
1542810002	04.09.2024	11	04.09.2024	16	32.621	10,3	159.267
2340990002	05.09.2024	8	05.09.2024	8	15.528	5,3	4.971
2731240002	05.09.2024	17	05.09.2024	17	44	4,1	12.076

In such a case, it would obviously be good to ensure that the execution plan related to the better performance is used all the time.

However, this observation could be misleading: different "execution times" might also be caused by changes in the application, the changed data volume or by other (also technical) reasons. In this case, the apparent "dependence on the PLAN ID" would not be caused by the execution plan itself, but by the situation of the system at the time when the execution plan happens to be active. Note also that a different PLAN_ID does not necessarily mean a different execution plan ... Text cut, see SAP Note 3210457

Recommendation: If you find no obvious reason why this SQL statement shows different performance at times when different execution plans are active, try to ensure that always the "good" execution plan is used. For that purpose, consider opening a customer incident on component HAN-DB.

19.3.3.3 Thread Distribution

The following table(s) shows both (if available) the "thread distribution" in terms of "thread state" and for thread samples in state "Running" (that is consuming CPU resources) the distribution of thread type and method. The information is obtained from the view HOST_SERVICE_THREAD_SAMPLES in the time interval analyzed. By this, some insight is given to the internal activities when the statement is processed, helping to understand which activities are responsible for the resource and/or time consumption.

For more information concerning threads and thread samples, see also [SAP Note 2114710](#).

Thread State	Area	Samples
Mutex Wait	Lock	387
Running	SQL	254
Job Exec Waiting	Idle	192

Thread Type (Thread Method) when THREAD_STATE = "Running"	Samples
JobWorker (PlanExecutor calc)	201
SqlExecutor (ExecutePrepared)	50
JobWorker (ParallelIndexSearchJob)	3

The following table shows the "thread distribution" in terms of "thread detail" and for all thread samples.

Thread Type	Thread Method	Thread Detail	Samples
SqlExecutor	ExecutePrepared	SELECT DISTINCT "MANDT", "LEDNR", "OBJNR", "GJAHR", "WRTTP", "VERSN", "KSTAR", "HRKFT", "VRGNG", "VBUND", "PARGB", "BEKNZ", "TWAER", "PERBL", "MEINH", "WTG001", "WTG002", "WTG003", "WTG004", "WTG005", "WTG006", "WTG007", "WTG00	153
JobWorker	ParallelIndexSearchJob	Search index of attribute	3
JobWorker	PlanExecutor calc	plan40661968@lxbell106:31 003/pop49 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan39341959@lxbell106:31 003/pop129 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan36593545@lxbell106:31 003/pop137 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan35220534@lxbell106:31 003/pop30 (JEStep2)	1
JobWorker	PlanExecutor calc	plan39394729@lxbell106:31 003/pop0 (RowPlanOperator)	1
JobWorker	PlanExecutor calc	plan36621291@lxbell106:31 003/pop39 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan36099230@lxbell106:31 003/pop0 (RowPlanOperator)	1
JobWorker	PlanExecutor calc	plan36173488@lxbell106:31 003/pop7 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan39516386@lxbell106:31 003/pop138 (JEStep3a)	1

Thread Type	Thread Method	Thread Detail	Samples
JobWorker	PlanExecutor calc	plan36005520@lxbell106:31 003/pop156 (JEStep3b)	1
JobWorker	PlanExecutor calc	plan35399822@lxbell106:31 003/pop154 (JEStep3b)	1
JobWorker	PlanExecutor calc	plan39412528@lxbell106:31 003/pop89 (JEStep3a)	1
JobWorker	PlanExecutor calc	plan35990914@lxbell106:31 003/pop175 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan39516386@lxbell106:31 003/pop108 (JEStep3b)	1
JobWorker	PlanExecutor calc	plan36853915@lxbell106:31 003/pop62 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan40270111@lxbell106:31 003/pop10 (JEStep2)	1
JobWorker	PlanExecutor calc	plan35499940@lxbell106:31 003/pop19 (JEEvalPrecond)	1
JobWorker	PlanExecutor calc	plan39779265@lxbell106:31 003/pop0 (RowPlanOperator)	1
OTHERS	OTHERS	OTHERS	659

A high number of thread samples related to this SQL statement indicates high lock activity (see [SAP Note 2114710](#) question (6) "How can I interpret the thread state?").

Recommendation: Analyze and - if possible - avoid the locking situations. For further information, see [SAP Note 1999998](#)

19.3.3.4 Statement History (All Thread Samples)

The following graph shows the number of threads, both for state "Running" and for all other thread states. Threads in state "Running" are responsible for the CPU consumption due to the statements. Non-running threads could be "idle", but might also indicate network or I/O issues or locking situations.

19.3.3.5 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.3.3.6 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
ACDOCA	SAPABAP1	COLUMN	RANGE	2.704.162.085	Ixbell106
COEP	SAPABAP1	COLUMN	HASH	281.416.660	Ixbell106
COSP_BAK	SAPABAP1	COLUMN	Table not partitioned	13.470.376	Ixbell106
FINSC_CMP_VERSND	SAPABAP1	COLUMN	Table not partitioned	135	Ixbell106
T000	SAPABAP1	COLUMN	Table not partitioned	6	Ixbell106

19.3.3.6.1 Partition of Table ACDOCA

The partitioning was performed with the following specification:

RANGE FISCYEARPER 2016012-2017003,2017003-2017006,2017006-2017009,2017009-2017012,2017012-2018003,2018003-2018006,2018006-2018009,2018009-2018012,2018012-2019003,2019003-2019006,2019006-2019012,2019012-2020003,2020003-2020006,2020006-2020009,2020009-2020012,2020012-2021003,2021003-2021006,2021006-2021009,2021009-2021012,*
--

The following tables show the number of entries for each partition together with the host on which the partition is located.

Partition ID	Value of field FISCYEARPER	Number of Records	Host
1	2016012-2017003	14.757.360	Ixbell106
2	2017003-2017006	16.793.361	Ixbell106
3	2017006-2017009	17.562.573	Ixbell106
4	2017009-2017012	16.781.508	Ixbell106
5	2017012-2018003	21.685.034	Ixbell106
6	2018003-2018006	18.801.162	Ixbell106
7	2018006-2018009	19.289.084	Ixbell106
8	2018009-2018012	18.719.202	Ixbell106
9	2018012-2019003	66.552.098	Ixbell106
10	2019003-2019006	89.065.258	Ixbell106
11	2019006-2019012	177.100.527	Ixbell106
12	2019012-2020003	86.891.381	Ixbell106
13	2020003-2020006	92.450.798	Ixbell106
14	2020006-2020009	93.636.892	Ixbell106
15	2020009-2020012	92.797.559	Ixbell106

Partition ID	Value of field FISCYEARPER	Number of Records	Host
16	2020012-2021003	89.990.326	Ixbell106
17	2021003-2021006	100.942.026	Ixbell106
18	2021006-2021009	135.074.300	Ixbell106
19	2021009-2021012	125.992.059	Ixbell106
20		1.409.279.577	Ixbell106

19.3.3.6.2 Partition of Table COEP

The partitioning was performed with the following specification:

HASH 6 BELNR

The following tables show the number of entries for each partition together with the host on which the partition is located.

Partition ID	Partition - hashing BELNR	Number of Records	Host
1	1	46.867.376	Ixbell106
2	2	46.865.435	Ixbell106
3	3	47.002.903	Ixbell106
4	4	46.894.263	Ixbell106
5	5	46.918.398	Ixbell106
6	6	46.868.285	Ixbell106

19.3.3.7 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	LKARSF21	391	31.01.2018	✓	CO-OM	Gemeinkosten-Controlling

19.3.4 SQL Statement 4b16d586f03f44c13a09f85d9ea3c97f

SELECT

"RYEAR" , "DRCRK" , "RPMAX" , "ACTIV" , "RMVCT" , "RTCUR" , "RUNIT" , "AWTYP" , "RLDNR" , "RRCTY" , "RVERS" , "LOGSYS" , "RACCT" , "COST_ELEM" , "RBUKRS" , "RCNTR" , "PRCTR" , "RFAREA" , "RBUSA" , "KOKRS" , "SEGMENT" , "SCNTR" , "PPRCTR" , "SFAREA" , "SBUSA" , "RASSC" , "PSEGMENT" , SUM("TSL08") "TSL08" , SUM("TSL09") "TSL09" , SUM("HSL08") "HSL08" , SUM("HSL09") "HSL09" , SUM("KSL08") "KSL08" , SUM(... Text cut, see SAP Note 3210457

FROM

"FAGLFLEXT"

WHERE

"RCLNT" = ? AND "RYEAR" = ? AND "RPMAX" = ? AND "RLDNR" = ?

GROUP BY

"RYEAR" , "DRCRK" , "RPMAX" , "ACTIV" , "RMVCT" , "RTCUR" , "RUNIT" , "AWTYP" , "RLDNR" , "RRCTY" , "RVERS" , "LOGSYS" , "RACCT" , "COST_ELEM" , "RBUKRS" , "RCNTR" , "PRCTR" , "RFAREA" , "RBUSA" , "KOKRS" , "SEGMENT" , "SCNTR" , "PPRCTR" ,

"SFAREA" , "SBUSA" , "RASSC" , "PSEGMENT"

ORDER BY

"FAGLFLEXT" . "ACTIV" , "FAGLFLEXT" . "AWTYP" , "FAGLFLEXT" . "COST_ELEM" , "FAGLFLEXT" . "KOKRS" , "FAGLFLEXT" . "LOGSYS" , "FAGLFLEXT" . "PPRCTR" , "FAGLFLEXT" . "PRCTR" , "FAGLFLEXT" . "PSEGMENT" , "FAGLFLEXT" . "RACCT" , "FAGLFLEXT" . "RASSC" , "FAGLFLEXT" . "RBUKRS" , "FAGLFLEXT" . "RBUSA" , "FAGLFLEXT" . "RCNTR" , "FAGLFLEXT" . "RFAREA" , "FAGLFLEXT" . "RLDNR" , "FAGLFLEXT" . "RMVCT" , "FAGLFLEXT" . "RRCTY" , "FAGLFLEXT" . "RTCUR" , "FAGLFLEXT" . "RUNIT" , "FAGLFLEXT" . "RVERS" ... Text cut, see SAP Note 3210457

Statement Impact



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SAP HANA SQL Statements in
P4H

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Indicator	Value
Contribution to Total CPU Load [%]	0,31
Maximal CPU Consumption per Hour [%] (05.09.2024 between 00:00 and 01:00)	0,49

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Total Memory)

19.3.4.1 Analysis of Where Clause

Table	Field	Operator
?	RCLNT	=
?	RLDNR	=
?	RPMAX	=
?	RYEAR	=

19.3.4.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	6.405	213.485.332	190.977.345	238.496.543
PREPARATION	5	172.025		
LOCK DURATION	0	0		

19.3.4.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.3.4.4 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
ACDOCA	SAPABAP1	COLUMN	RANGE	2.704.162.085	lxbell106
FAGLFLEXT_BCK	SAPABAP1	COLUMN	Table not partitioned	453.851	lxbell106
FINSC_LD_CMP	SAPABAP1	COLUMN	Table not partitioned	301	lxbell106
FINSC_LEDGER REP	SAPABAP1	COLUMN	Table not partitioned	20	lxbell106

19.3.4.5 Compatibility View Access

SAP Simple Finance offers a simplified data model. Several tables have become obsolete and are removed. To allow existing coding to continue to work, these tables are replaced by views with the same name, known as "Compatibility Views". As a result, read access to these objects is still possible; however, performance is affected since it is now an access to a view instead of a simple table. For some general background information, see <https://launchpad.support.sap.com/#/notes/1976487> [SAP Note 1976487].

See [SAP Note 2221298](#) for advice about using the views GLT0, FAGLFLEXT, FMGLFLEXT, PSGLFLEXT, and JVGLFLEXT in SAP S/4HANA Finance.

19.3.4.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding
PE4	BIREQU_000016F4_20240906160659	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000222C_20240905080407	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_000026C0_20240903102002	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000649C_20240904081119	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00006B4C_20240901010200	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00006FD4_20240901235914	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00007830_20240905160649	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_000099E0_20240904160553	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00009ED8_20240905004617	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000C2B0_20240906100745	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000D564_20240906140721	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000D6A4_20240905100813	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000DE34_20240905140951	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000FC7C_20240906005056	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00011774_20240903141159	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00011C1C_20240903120851	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	ODQR_20240901_010520_000057_F	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	ODQR_20240902_005941_000012_F	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	ODQR_20240904_005612_000011_F	GP_GLX_FAGLFLEXT	1.013	11.08.2024	
PE4	ODQR_20240906_011146_000003_F	GP_GLX_FAGLFLEXT	1.013	11.08.2024	

19.3.5 SQL Statement a101fba8d0c1d91c7f6559d73670b4cb

SELECT DISTINCT

"MANDT", "LEDNR", "OBJNR", "GJAHR", "WRTTP", "VERSN", "KSTAR", "HRKFT", "VRGNG", "PAROB", "USPOB", "BEKNZ", "TWAER", "PERBL", "MEINH", "WTG001", "WTG002", "WTG003", "WTG004", "WTG005", "WTG006", "WTG007", "WTG008", "WTG009", "WTG010", "WTG011", "WTG012", "WTG013", "WTG014", "WTG015", "WTG016", "WOG001", "WOG002", "WOG003", "WOG004", "WOG005", "WOG006", "WOG007", "WOG008", "WOG009" ... Text cut, see SAP Note 3210457

FROM

"COSS"

WHERE



"MANDT" = ? AND "LEDNR" = ? AND "OBJNR" IN (?) AND "GJAHR" BETWEEN ? AND ? AND "WRTTP" = ? AND "VERSN" = ? AND "PERBL" = ? WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	0,18
Maximal CPU Consumption per Hour [%] (04.09.2024 between 11:00 and 12:00)	0,79

19.3.5.1 Analysis of Where Clause

Table	Field	Operator
?	GJAHR	BETWEEN
?	LEDNR	=
?	MANDT	=
?	OBJNR	IN
?	PERBL	=
?	VERSN	=
?	WRTTP	=

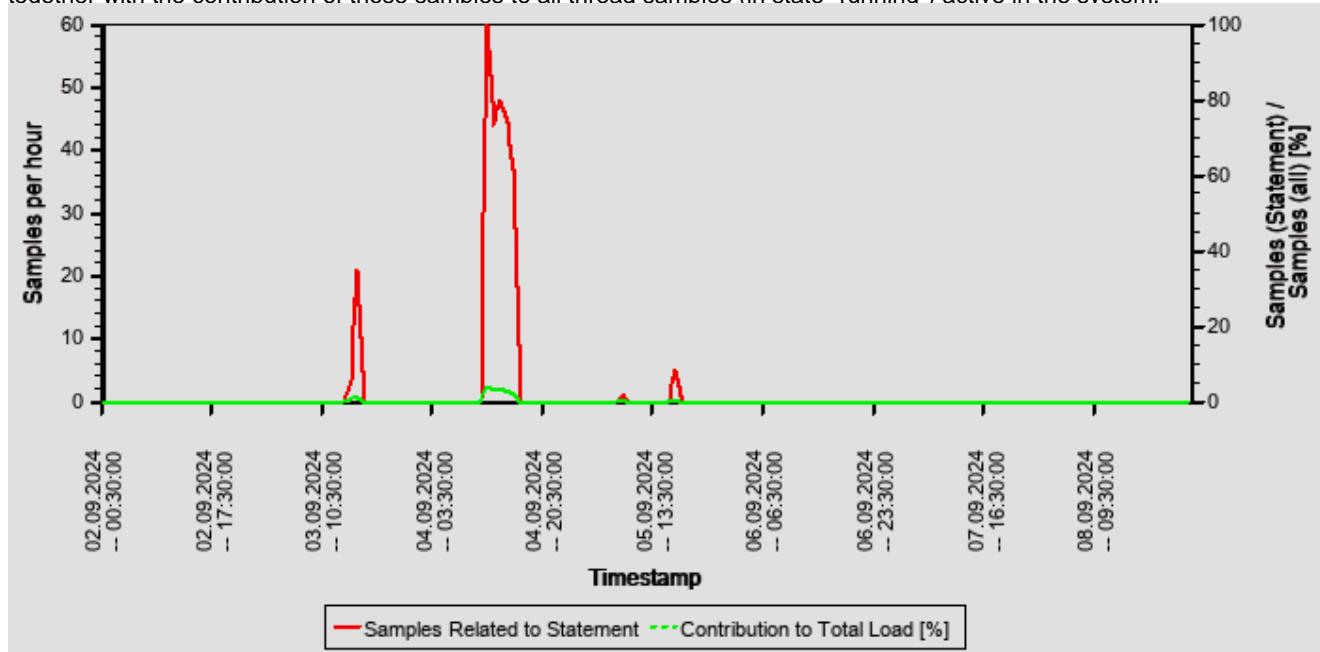
19.3.5.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	6.359	73.409	813	277.923
PREPARATION	13	152		
LOCK DURATION	0	0		

19.3.5.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.



19.3.5.4 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
ACDOCA	SAPABAP1	COLUMN	RANGE	2.704.162.085	lxbell106
COEP	SAPABAP1	COLUMN	HASH	281.416.660	lxbell106
COSS_BAK	SAPABAP1	COLUMN	Table not partitioned	4.738.312	lxbell106
FINSC_CMP_VERSND	SAPABAP1	COLUMN	Table not partitioned	135	lxbell106
T000	SAPABAP1	COLUMN	Table not partitioned	6	lxbell106

19.3.5.5 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	FCLOCO	LKARSF22	392	31.01.2018	✓	CO-OM	Gemeinkosten-Controlling

19.4 Top MATDOC Statements (Elapsed Time)

This section shows the top non-internal statements according to "Total Elapsed Time". The "Total Elapsed Time" is the sum of the "Total Execution Time" and the "Total Preparation Time" from the SQL PLAN CACHE. It has a direct impact on the response time of the application calling the statement.

Only statements accessing table MATDOC are shown.

See the following table for details of the selection:

Database Start	03.09.2024 -- 09:29:32
Data Collection	09.09.2024 -- 06:26:01
Analysis Type	Analysis of Plan Cache
Data Source	HOST_SQL_PLAN_CACHE
Begin of Time Interval	01.09.2024 -- 23:46:51
End of Time Interval	09.09.2024 -- 00:36:53

The selected statements - identified by their "Statement Hash" - are listed in the following table. Further details of these statements can be found in the subsections.

Statement Hash	Total Elapsed Time [s]	Number of Executions	Time / Execution [us]	Records / Execution	Time / Record [us]
8b2f1074afb23d1c2cb19fcaecf67b00	404.218,9	1.105.753	365.559,9	3,4	106.480,1
1e4b0471db23f73bac5fb890a49fcf	56.918,8	770.209	73.900,5	1,0	74.133,9
38880670838dec49746db8bf1ee40d9d	39.061,3	4.936.429	7.912,9	0,1	84.804,0
a2d2cd2e3b6482daab0e4ae40e50efd4	32.286,3	2.716	11.887.448,9	39.263,5	302,8
4bfd6cd092cd1df4539f279586497c3	26.651,3	356.943	74.665,3	1,0	74.665,3

19.4.1 SQL Statement 8b2f1074afb23d1c2cb19fcaecf67b00

SELECT

```
/* FDA WRITE */ DISTINCT "NSDM_E_MARD_AGG" . "MATNR" , "NSDM_E_MARD_AGG" . "WERKS" ,
"NSDM_E_MARD_AGG" . "LGORT" , "NSDM_E_MARD_AGG" . "LBBSA" , "NSDM_E_MARD_AGG" . "SOBKZ" ,
```



```
"NSDM_E_MARD_AGG" . "STOCK_QTY" , "NSDM_E_MARD_AGG" . "STOCK_VKWRT" , "NSDM_E_MARD_AGG" .
"GJPER_MAX" , "NSDM_E_MARD_AGG" . "/CWM/STOCK_QTY"
```

FROM

```
/* Entity name: NSDM_E_MARD_AGG */ "NSDM_V_MARD_AGG" "NSDM_E_MARD_AGG" , ? AS "t_00" ("C_0"
NVARCHAR(40), "C_1" NVARCHAR
```

```
(4), "C_2" NVARCHAR(4))
```

WHERE

```
"NSDM_E_MARD_AGG" . "MANDT" = ? AND "NSDM_E_MARD_AGG" . "MATNR" = "t_00" . "C_0" AND
"NSDM_E_MARD_AGG" . "WERKS" = "t_00" . "C_1" AND "NSDM_E_MARD_AGG" . "LGORT" = "t_00" . "C_2" WITH
RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	9,82
Contribution to Total Execution Time [%]	19,54
Maximal CPU Consumption per Hour [%] (06.09.2024 between 18:00 and 19:00)	4,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

- SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)
- SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)
- SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table
- SAP HANA SQL Statements in P4H -> Top Statements (CPU Peak Hour)

19.4.1.1 Analysis of Where Clause

Table	Field	Operator
?	LGORT	=
?	MANDT	=
?	MATNR	=
?	WERKS	=

19.4.1.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	404.219	365.560	569	5.924.195
PREPARATION	0	0		
LOCK DURATION	0	0		

19.4.1.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.4.1.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,65	strong correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,39	medium correlation

19.4.1.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	lxbell106

19.4.1.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

Early	Watch Alert	CL_NSMDM_S	Bell Schweiz AG	18.04.2021		LO-MD-MM	03.09.2021	08.09.2024
PF4 SID	ZOSBP5300F START_CI TRANSACTION, SAPAUINYODOC	ELEN\$DMAS Report SELECT_MAR==CM003	Line Last	15 18.04.2021	SAP ✓ Changed on:	LO-MD-MM Application	Materialstam m Description	Materialstam m
PE4	Z_DGS_ALL_PDAO_U	DE=NSDM_S==CM003	15	18.04.2021		LO-MD-MM	Materialstam m	Materialstam m
PE4	XIDPPLUTSTARTN100_A	ELEN\$DMAS SELECT_MAR==CM003	15	18.04.2021		LO-MD-MM	Materialstam m	Materialstam m
PE4	Z_DGS_ALL_PDAO_U	DE=NSDM_S==CM003	15	18.04.2021		LO-MD-MM	Materialstam m	Materialstam m
PE4	XIDPPLUTSTARTN100_A	ELEN\$DMAS SELECT_MAR==CM003	15	18.04.2021		LO-MD-MM	Materialstam m	Materialstam m
PF4	Z_SD_6100_LIEFERUP	DE=NSDM_S==CM003	15	18.04.2021		LO-MD-MM	Materialstam m	Materialstam m
PE4	ZMTE_BESTAND_AUSB UCHEN	ELEN\$DMAS SELECT_MAR==CM003	15	18.04.2021		LO-MD-MM	Materialstam m	Materialstam m
		D=====CM003						

19.4.2 SQL Statement 1e4b0471db23f73bac5fdbd890a49fcbf

```

SELECT
"MANDT", "MATNR", "WERKS", "LFGJA", "LFMON", "UMLMC", "TRAME", "VKUMC", "VKTRW", "GLGMR",
"VKGLG", "BWESB", "/CWM/UMLMC", "/CWM/TRAME", "/CWM/BWESB"
FROM
/* Redirected table: MARCH */ "NSDM_V_MARCH" "MARCH"
WHERE

```

"MANDT" = ? AND "MATNR" = ? AND "WERKS" = ? AND "LFGJA" = ? AND "LFMON" = ? WITH
RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	2,96
Contribution to Total Execution Time [%]	2,75
Maximal CPU Consumption per Hour [%] (06.09.2024 between 20:00 and 21:00)	1,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement
SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)
SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

19.4.2.1 Analysis of Where Clause

Table	Field	Operator	Supported by Single Column Index	Compression	Distinct Values	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MATDOC_E_XTRACT	LFGJA	=					
MATDOC_E_XTRACT	LFMON	=					
MATDOC_E_XTRACT	MANDT	=				18.578.493.586	0
MATDOC_E_XTRACT	MATNR	=					
MATDOC_E_XTRACT	WERKS	=				744.150.903.406	32

19.4.2.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	56.919	73.900	1.782	407.221



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Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
PREPARATION	0	0		
LOCK DURATION	0	0		

19.4.2.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.4.2.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,27	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,46	medium correlation

19.4.2.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106

19.4.2.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	Z_BC_5800_START_CIF_FAULTY_DOC	LMG22U42	71	20.11.2020	✓	LO-MD-MM	Materialstamm



PE4	Z_PAR_5800_PULL_PPS2SAP	LMG22U42	71	20.11.2020		LO-MD-MM	Materialstamm
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SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	Z_DGS_ALL_PDAO_UND_PUFFE R_1100_A	LMG22U42	71	20.11.2020	✓	LO-MD-MM	Materialstamm

19.4.3 SQL Statement 38880670838dec49746db8bf1ee40d9d

```

SELECT
/* FDA READ */ "MATNR" , "WERKS" , "UMLMC" , "TRAME" , "VKUMC" , "VKTRW" , "GLGMG" , "VKGLG" , "BWESB" ,
"GJPER" , "MCRUE" , "/CWM/UMLMC" , "/CWM/TRAME" , "/CWM/BWESB"
FROM
/* Entity name: NSDM_E_MARC_DIFF */ "NSDM_V_MARC_DIFF" "NSDM_E_MARC_DIFF"
WHERE
"MANDT" = ? AND "MATNR" = ? AND "WERKS" = ? WITH RANGE_RESTRICTION('CURRENT')
Statement Impact

```

Indicator	Value
Contribution to Total CPU Load [%]	0,84
Contribution to Total Execution Time [%]	1,89
Maximal CPU Consumption per Hour [%] (06.09.2024 between 09:00 and 10:00)	0,58

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

19.4.3.1 Analysis of Where Clause

Table	Field	Operator	Supported by Single Column Index	Compression	Distinct Values	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MATDOC_E_XTRACT	MANDT	=				18.578.493.586	0
MATDOC_E_XTRACT	MATNR	=					
MATDOC_E_XTRACT	WERKS	=				744.150.903.406	32

19.4.3.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	39.026	7.906	104	858.619
PREPARATION	36	7		
LOCK DURATION	0	0		

19.4.3.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.4.4 SQL Statement a2d2cd2e3b6482daab0e4ae40e50efd4

EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

SELECT

```
/* FDA WRITE */ DISTINCT "NSDM_V_MCHB" . "MATNR" , "NSDM_V_MCHB" . "WERKS" , "NSDM_V_MCHB" .
"LGORT" , "NSDM_V_MCHB" . "CHARG" , "NSDM_V_MCHB" . "CLABS" , "NSDM_V_MCHB" . "CINSM" ,
"NSDM_V_MCHB" . "CSPEM" , "NSDM_V_MCHB" . "CEINM" , "NSDM_V_MCHB" . "CUMLM"
FROM
"NSDM_V_MCHB" , ? AS "t_00" ("C_0" NVARCHAR(40), "C_1" NVARCHAR(4), "C_2" NVARCHAR(4), "C_3"
NVARCHAR(10))
WHERE
"NSDM_V_MCHB" . "MANDT" = ? AND "NSDM_V_MCHB" . "MATNR" = "t_00" . "C_0" AND "NSDM_V_MCHB" .
"WERKS" = "t_00" . "C_1" AND "NSDM_V_MCHB" . "LGORT" = "t_00" . "C_2" AND "NSDM_V_MCHB" . "CHARG" =
?t_00" . "C_3" WITH RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	3,98
Contribution to Total Execution Time [%]	1,56
Maximal CPU Consumption per Hour [%] (05.09.2024 between 22:00 and 23:00)	5,78

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Total Memory)

19.4.4 Correlation with Index Server Resource Consumption

SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

19.4.4.1 Analysis of Where Clause

Distribution Table	Field	Correlation Coefficient Operator	Comment
CPU consumption index server(s) - Statement	Threads (running) from this SQL	=	0,60 strong correlation
Memory consumption index server(s) - Statement	CHARG	=	
?	LGORT	=	0,35 medium correlation
?	MANDT	=	
?	MATNR	=	
?	WERKS	=	

19.4.3.5 Tables

19.4.4.2 Time Consumption

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
The following table gives an overview of the time consumption of the analyzed SQL statement.					
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106
Activity		Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION		32.285	11.886.852	266.968	52.944.580
PREPARATION		2	597		
LOCK DURATION		0	0		

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line Last Change	SAP Coding	Application Component	Description
The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.						
P24	2_DP_1100_LIEFERUPDATER DATE_WA	CL_NSMD_S ELECT_MAR C=====CM008	17.09.2021	"running") active in the system.	LO-MD-MM	Materialstam m



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SAP HANA SQL Statements in P4H

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PE4	Z_IBP_CH_DAILY_DATALOA D	/IBP/LECC_MAINU14	131	15.05.2024		<input checked="" type="checkbox"/>
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EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

19.4.5 SQL Statement 4bfd6cd092cd1d1f4539f279586497c3

```

SELECT DISTINCT
"MANDT" , "MATNR" , "WERKS" , "LGORT" , "CHARG" , "LFGJA" , "LFMON" , "CLABS" , "CUMLM" , "CINSM" , "CEINM"
, "CSPEM" , "CRETM" , "/CWM/CLABS" , "/CWM/CUMLM" , "/CWM/CINSM" , "/CWM/CEINM" , "/CWM/CSPEM" ,
"/CWM/CRETM"

FROM
/* Redirected table: MCHBH */ "NSDM_V_MCHBH" "MCHBH"

WHERE
"MANDT" = ? AND "MATNR" = ? AND "WERKS" = ? AND "LGORT" = ? AND "CHARG" = ? AND "LFGJA" = ? AND
"LFMON" = ? WITH RANGE_RESTRICTION('CURRENT')

```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	1,30
Contribution to Total Execution Time [%]	1,29
Maximal CPU Consumption per Hour [%] (02.09.2024 between 01:00 and 02:00)	0,85

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

19.4.4.4 Correlation with Index Server Resource Consumption

19.4.5.1 Analysis of Where Clause

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU

Table Consumption.	Field	Operator	Supported by Single Column Index	Compression	Distinct Values	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
CPU consumption index server(s)			Threads (running) from this SQL			0,34	medium correlation
MATDOC_E Statement XTRACT	CHARG	=					
Memory consumption index server(s)			Threads (running) from this SQL			0,16	weak correlation
MATDOC_E Statement XTRACT	LFGJA	=					
MATDOC_E XTRACT	LFMON	=					
MATDOC_E XTRACT	LGORT	=					
In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.							
Table Name	Schema Name	Table Type	Partition Type		Number of Records	Host	
MATDOC_E XTRACT	SAPABAP1	COLUMN	Table not partitioned		18.578.493.586	0	
MATDOC_E XTRACT	SAPABAP1	COLUMN	Table not partitioned		428.376.569	ibell106	
MATDOC_E XTRACT	WERKS	=			19.955.650	ibell106	
MATDOC_E XTRACT					744.150.903.406		32

19.4.4.6 Origin of SQL Statement

19.4.5.2 Time Consumption

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the time of "prepared" or "active" statements and is not necessarily completed by the analyzed SQL statement.

Activity	Transaction / Jobname	Total Time [ms]	Average Time [us]	Line	Max. Change [us]	Max. Application
PREPARATION	NABAP	126.651	/IBP/LECC_MAINU14	74.665	131 15.05.2024 6.905	449.844
PREPARATION		0		1		
LOCK DURATION		0		0		

19.4.5.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.



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P4H

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PE4	Z_DGS_ALL_PDAO_UND_PUFFE	LMMSOU01	311	16.03.2020	<input checked="" type="checkbox"/>	LO-MD-MM	Materialstam m
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EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

19.4.5.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,23	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,40	medium correlation

19.4.5.5 Tables

19.5 Statements on Top Scanned Table

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Total Elapsed Time	Number of Records	Hash	Host
MATDOC_GSX_XRAC_PSAV_PUFFE	Z_DGS_ALL_PDAO_UND_PUFFE	COLUMN PARTITIONED	Table or partitioned	120.070.009	120.070.009	<input checked="" type="checkbox"/>	Materialstam m

Only SQL Statement accessing the "top scanned table" are shown. The "top scanned table" is the table that contains the column with the highest number of "SCANNED_RECORDS" in M_CS_ALL_COLUMN_STATISTICS (see the following table). In many cases, creating an index on that column might improve the accesses.

Schema	Table	Column
Information	Statement	Hash

The following table shows details of the applications responsible for the statement. This information is based on the

information provided by SAP HANA in the "application source" connected to the statement in the "Thread samples" or the

list of "prepared" or "active" statements, and is not necessarily complete.

See the following table for details of the selection:

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding Component	Application Component	Description
	Database Start			03.09.2024 -- 09:29:32			
	Data Collection			10.09.2024 -- 06:26:01			
PE4	Z_BIL_BFG_CSBFF_DE	LMMSOU01	311	16.03.2020	Analysis of Plan Cache	LO-MD-MM	Materialstam m
	Analysis Type						
	ISADV_IN_OUT						
	Data Source				HOST_SQL_PLAN_CACHE		
PE4	Z_DGS_5800_PDAO_MOV_NEW	LMMSOU01	311	16.03.2020		LO-MD-MM	Materialstam m
	Begin of Time Interval			01.09.2024 -- 23:46:51			
	End of Time Interval			09.09.2024 -- 00:36:53			

The selected statements - identified by their "Statement Hash" - are listed in the following table. Further details of these statements can be found in the subsections.

Statement Hash	Total Elapsed Time [s]	Number of Executions	Time / Execution [us]	Records / Execution	Time / Record [us]
8b2f1074afb23d1c 2cb19fcaecf67b00	404.218,9	1.105.753	365.559,9	3,4	106.480,1



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Statement Hash	Total Elapsed Time [s]	Number of Executions	Time / Execution [us]	Records / Execution	Time / Record [us]
1e4b0471db23f73 bac5fb890a49fcf	56.918,8	770.209	73.900,5	1,0	74.133,9
38880670838dec4 9746db8bf1ee40d 9d	39.061,3	4.936.429	7.912,9	0,1	84.804,0
a2d2cd2e3b6482d aab0e4ae40e50ef d4	32.286,3	2.716	11.887.448,9	39.263,5	302,8
4bfd6cd092cd1d1 f4539f279586497 c3	26.651,3	356.943	74.665,3	1,0	74.665,3

19.5.1 SQL Statement 8b2f1074afb23d1c2cb19fcaecf67b00

```

SELECT
/* FDA WRITE */ DISTINCT "NSDM_E_MARD_AGG" . "MATNR" , "NSDM_E_MARD_AGG" . "WERKS" ,
"NSDM_E_MARD_AGG" . "LGORT" , "NSDM_E_MARD_AGG" . "LBBSA" , "NSDM_E_MARD_AGG" . "SOBKZ" ,
"NSDM_E_MARD_AGG" . "STOCK_QTY" , "NSDM_E_MARD_AGG" . "STOCK_VKWRT" , "NSDM_E_MARD_AGG" .
"GJPER_MAX" , "NSDM_E_MARD_AGG" . "/CWM/STOCK_QTY"

FROM
/* Entity name: NSDM_E_MARD_AGG */ "NSDM_V_MARD_AGG" "NSDM_E_MARD_AGG" , ? AS "t_00" ("C_0"
NVARCHAR(40), "C_1" NVARCHAR
(4), "C_2" NVARCHAR(4))
WHERE
"NSDM_E_MARD_AGG" . "MANDT" = ? AND "NSDM_E_MARD_AGG" . "MATNR" = "t_00" . "C_0" AND
"NSDM_E_MARD_AGG" . "WERKS" = "t_00" . "C_1" AND "NSDM_E_MARD_AGG" . "LGORT" = "t_00" . "C_2" WITH
RANGE_RESTRICTION('CURRENT')

```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	9,82
Contribution to Total Execution Time [%]	19,54
Maximal CPU Consumption per Hour [%] (06.09.2024 between 18:00 and 19:00)	4,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)
SAP HANA SQL Statements in P4H -> Top Statements (CPU Peak Hour)

19.5.1.1 Analysis of Where Clause

Table	Field	Operator
?	LGORT	=
?	MANDT	=
?	MATNR	=
?	WERKS	=

19.5.1.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	404.219	365.560	569	5.924.195
PREPARATION	0	0		
LOCK DURATION	0	0		

19.5.1.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.5.1.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,65	strong correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,39	medium correlation

19.5.1.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106

19.5.1.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

19.5.2 SQL Statement 1e4b0471db23f73bac5fdb890a49fcfb

Early Watch Alert	CL_NSDM_S	Bell Schweiz AG	18.04.2021		LO-MD-MM	Materialstam
PE4_Z_DPAEFEERUPDATE SIDEV Transaction)	ELENSDMAS Report	Line Last	15 18.04.2021	SAP ✓ ding	LO-MD-MM Application	Materialstam
"MANDT" = ? AND "WERKS" = ? AND "LFGJA" = ? AND "LFMON" = ? AND "UMLNGC" = ? AND "UMLNTRNAME" = ? AND "VKUMC" = ? AND "VOMD_LGMG" = ?	ELENSDMAS Report	Line Last	15 18.04.2021	✓	Component	Materialstam
"VKUMC" , "VOMD_LGMG"	ELENSDMAS Report	Line Last	15 18.04.2021	✓	LO-MD-MM	Materialstam
PE4_Z_DPAESTADNC	ELENSDMAS Report	Line Last	15 18.04.2021		LO-MD-MM	Materialstam
FROM	ELENSDMAS Report	Line Last	15 18.04.2021		LO-MD-MM	Materialstam
PREPARED DATE: MARCH */ * / 2021	ELENSDMAS Report	Line Last	15 18.04.2021	✓	LO-MD-MM	Materialstam
WHERE CSBFF_DE SADV_IN_OUT "MANDT" = ? AND "MATNR" = ? AND "WERKS" = ? AND "LFGJA" = ? AND "LFMON" = ? WITH PE4_Z_DGS_ALL_PDAO_U RANGE RESTRICTION CURRENT ND_PUFFER_1100_A	ELECT_MAR D=====CM003	Line Last	15 18.04.2021	✓	LO-MD-MM	Materialstam
Statement Impact	ELECT_MAR D=====CM003	Line Last	15 18.04.2021			

PE4_Z_DGS_ALL_PDAO_U	CL_NSDM_S	15 18.04.2021	✓	LO-MD-MM	Materialstam
Indicator	ND_PUFFER_1100_A	ELECT_MAR D=====CM003			
Contribution to Total CPU Load [%]					2,96
Contribution to Total Execution Time [%]	CL_NSDM_S	15 18.04.2021		LO-MD-MM	Materialstam
Maxim CPU Consumption per Thread (MAR 06.09.2024 between 20:00 and 21:00)					1,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)			
SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)			
SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)			

19.5.2.1 Analysis of Where Clause

Table	Field	Operator	Supported by Single Column Index	Compression	Distinct Values	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MATDOC_E_XTRACT	LFGJA	=					
MATDOC_E_XTRACT	LFMON	=					
MATDOC_E_XTRACT	MANDT	=				18.578.493.586	0
MATDOC_E_XTRACT	MATNR	=					
MATDOC_E_XTRACT	WERKS	=				744.150.903.406	32

19.5.2.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	56.919	73.900	1.782	407.221
PREPARATION	0	0		
LOCK DURATION	0	0		

19.5.2.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.



19.5.2.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,27	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,46	medium correlation

19.5.2.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106

19.5.2.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

19.5.3 SQL Statement 38880670838dec49746db8bf1ee40d9 d

EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

PE41Z_PDS_5800_PULG_DR02PUFFE SIDEC Transaction / Jobname	LMG22U42 Report	Line	Last	SAP Coding	LO-MD-MM Application Component	Materialstam m Description
/* FDA READ */ "MATNR" , "WERKS" , "UMLMC" , "TRAME"	71	20.11.2020	Changed on	VKTRW" , "GLGM	Component	"BWESB" ,
"SUPER" , "MGRUE" , "CWM/UMACTY" "/CWM/TRAUME" , "CWM/BWESB"	71	20.11.2020			LO-MD-MM	Materialstam
PE41Z_BC_0800_START_CIF_MAULTY	LMG22U42					m
FROMDOC						
/* Entity name: NSDM_E_MARC_DIFF */ "NSDM_V_MARC_DIFF" "NSDM_E_MARC_DIFF"						
WHERE						
"MANDT" = ? AND "MATNR" = ? AND "WERKS" = ? WITH RANGE_RESTRICTION('CURRENT')						
Statement Impact						

Indicator	Value
Contribution to Total CPU Load [%]	0,84
Contribution to Total Execution Time [%]	1,89
Maximal CPU Consumption per Hour [%] (06.09.2024 between 09:00 and 10:00)	0,58

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)

19.5.3.1 Analysis of Where Clause

Table	Field	Operator	Supported by Single Column Index	Compression	Distinct Values	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MATDOC_E_XTRACT	MANDT	=				18.578.493.586	0
MATDOC_E_XTRACT	MATNR	=					
MATDOC_E_XTRACT	WERKS	=				744.150.903.406	32

19.5.3.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	39.026	7.906	104	858.619
PREPARATION	36	7		
LOCK DURATION	0	0		

19.5.3.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.



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19.5.3.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,60	strong correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,35	medium correlation

19.5.3.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106

19.5.3.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	Z_DP_1100_LIEFERUP DATE_WA	CL_NSMDM_S ELECT_MAR C=====CM008	14	18.04.2021	✓	LO-MD-MM	Materialstam m

19.5.4 SQL Statement a2d2cd2e3b6482daab0e4ae40e50efd4

SELECT

```
/* FDA WRITE */ DISTINCT "NSDM_V_MCHB" . "MATNR" , "NSDM_V_MCHB" . "WERKS" , "NSDM_V_MCHB" .
"LGORT" , "NSDM_V_MCHB" ."CHARG" , "NSDM_V_MCHB" . "CLABS" , "NSDM_V_MCHB" . "CINSM" ,
"NSDM_V_MCHB" . "CSPEM" , "NSDM_V_MCHB" . "CEINM" , "NSDM_V_MCHB" . "CUMLM"
```



FROM

```
"NSDM_V_MCHB" , ? AS "t_00" ("C_0" NVARCHAR(40), "C_1" NVARCHAR(4), "C_2" NVARCHAR(4), "C_3"
NVARCHAR(10))
WHERE
"NSDM_V_MCHB" . "MANDT" = ? AND "NSDM_V_MCHB" . "MATNR" = "t_00" . "C_0" AND "NSDM_V_MCHB" .
"WERKS" = "t_00" . "C_1" AND "NSDM_V_MCHB" . "LGORT" = "t_00" . "C_2" AND "NSDM_V_MCHB" . "CHARG" =
?t_00" . "C_3" WITH RANGE_RESTRICTION('CURRENT')
Statement Impact
```

Indicator	Value
Contribution to Total CPU Load [%]	3,98
Contribution to Total Execution Time [%]	1,56
Maximal CPU Consumption per Hour [%] (05.09.2024 between 22:00 and 23:00)	5,78

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement
SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top Statements (Total Memory)
SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)

19.5.4.1 Analysis of Where Clause

Table	Field	Operator
?	CHARG	=
?	LGORT	=
?	MANDT	=
?	MATNR	=
?	WERKS	=

19.5.4.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	32.285	11.886.852	266.968	52.944.580
PREPARATION	2	597		
LOCK DURATION	0	0		

19.5.4.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.5.4.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,34	medium correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,16	weak correlation

19.5.4.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106
MCHB	SAPABAP1	COLUMN	Table not partitioned	19.955.650	Ixbell106

19.5.4.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding
PE4	BI_PROCESS_ABAP	/IBP/LECC_MAINU14	131	15.05.2024	<input checked="" type="checkbox"/>
PE4	Z_IBP_CH_DAILY_DATALOAD	/IBP/LECC_MAINU14	131	15.05.2024	

SELECT DISTINCT

"MANDT" , "MATNR" , "WERKS" , "LGORT" , "CHARG" , "LFGJA" , "LFMON" , "CLABS" , "CUMLM" , "CINSM" , "CEINM" , "CSPEM" , "CRETM" , "/CWM/CLABS" , "/CWM/CUMLM" , "/CWM/CINSM" , "/CWM/CEINM" , "/CWM/CSPEM" , "/CWM/CRETM"

FROM

/* Redirected table: MCHBH */ "NSDM_V_MCHBH" "MCHBH"

WHERE

"MANDT" = ? AND "MATNR" = ? AND "WERKS" = ? AND "LGORT" = ? AND "CHARG" = ? AND "LFGJA" = ? AND "LFMON" = ? WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	1,30
Contribution to Total Execution Time [%]	1,29
Maximal CPU Consumption per Hour [%] (02.09.2024 between 01:00 and 02:00)	0,85

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)

19.5.5.1 Analysis of Where Clause

Table	Field	Operator	Supported by Single Column Index	Compression	Distinct Values	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MATDOC_E_XTRACT	CHARG	=					
MATDOC_E_XTRACT	LFGJA	=					
MATDOC_E_XTRACT	LFMON	=					
MATDOC_E_XTRACT	LGORT	=					
MATDOC_E_XTRACT	MANDT	=				18.578.493.586	0
MATDOC_E_XTRACT	MATNR	=					
MATDOC_E_XTRACT	WERKS	=				744.150.903.406	32

19.5.5.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	26.651	74.665	6.905	449.844
PREPARATION	0	1		
LOCK DURATION	0	0		

19.5.5.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

PE4	Z_DGS_ALL_PDAO_UND_PUFFE R_1100_A	LMMSOU01	311	16.03.2020	<input checked="" type="checkbox"/>	LO-MD-MM	Materialstam m
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EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

19.5.5.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,23	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,40	medium correlation

19.5.5.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

19.5.5.5.1 Top Statements (Total Memory)

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
PE4_Z_DGS_XTRAC_PDAO_UND_PUFFE	LMMSOU01	Table	16.03.2020	1	LO-MD-MM

This section shows the top statements according to memory consumption as obtained from the SQL PLAN CACHE. It considers the product of the number of executions and the average memory consumption per execution.

See the following table for details of the selection:

Database Start	03.09.2024 -- 09:29:32						
Data	The following table shows details of the applications responsible for the statements. The information is based on the analysis type provided by SAP HANA in the "application source" connection. Analysis type can be either "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.						
Statement Hash / Transaction / Jobname	09.09.2024 -- 09:26:01 Information is based on the analysis type provided by SAP HANA in the "application source" connection. Analysis type can be either "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.						
Report	Analyses the statements in the "SQL PLAN CACHE".						
SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4_Z_DBI_REC_CSBFF_DF	The selected statements - identified by their "Statement Hash" - are listed in the following table. Further details of these statements can be found in the subsections.						
SADV_IN_OUT	Number of Executions	Time / Execution [us]	Records / Execution	Execution Time [GBMDs]	LO-MD-MM	Materialstam	Memory / Execution [MB]
PE4_Z_DGS_5800	PDAO_MOV_NEW	LMMSOU01 311	16.03.2020	Memx Avg Time [GBMDs]	MM	Materialstam	
eb54f7641ea40ed df456604ecc100f 46	1	19.236.533.683,0	0,0	765.385		m	40.743,0
4b16d586f03f44c1 3a09f85d9ea3c97f	30	214.561.278,3	59.361,7	472.999			75.246,8
1ed799084d3b662 80a30da065a24a8 ce	3.450	15.851.887,4	191,2	312.820			5.857,3



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Statement Hash	Number of Executions	Time / Execution [us]	Records / Execution	Executionsx Avg Memx Avg Time[GBx s]	Memory / Execution [MB]
a2d2cd2e3b6482daab0e4ae40e50efd4	3.000	13.405.463,7	38.442,7	237.497	6.047,2
1463aac81f86aae55e3a5117328902c7	1	863.023.103,0	50.000,0	155.562	184.578,9

19.6.1 SQL Statement eb54f7641ea40eddf456604ecc100f46

CALL "CHECK_TABLE_CONSISTENCY"(?, ?, ?) WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	2,13
Contribution to Total Execution Time [%]	0,55
Maximal CPU Consumption per Hour [%] (07.09.2024 between 03:00 and 04:00)	12,24
Contribution to Total Memory Consumption [%]	0,07
Maximal Memory Consumption [%]	1,20

19.6.1.1 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	19.237	19.236.528.374	19.236.528.374	19.236.528.374
PREPARATION	0	5.309		
LOCK DURATION	0	0		

19.6.1.2 Memory Consumption

The following table provides an overview of the memory consumption of the analyzed SQL statement as obtained from the monitoring view M_SQL_PLAN_STATISTICS (or – if not yet available – M_SQL_PLAN_CACHE), that is, without taking a specific time interval into account.

Activity	Total Memory [GB]	Average Memory [MB]	Minimal Memory [MB]	Maximal Memory [MB]
EXECUTION_MEMORY_SIZE	40	40.743,0	40.743,0	40.743,0

19.6.1.2.1 High Memory Consumption

The memory consumption of this statement is relatively high when compared with the minimum "effective allocation limit" of the index server(s) as obtained from M_SERVICE_MEMORY. See the following table for details. Note that the excessive memory consumption of a single statement might impact the stability of the whole SAP HANA system. See [SAP Note 1999997](#) for details and for an option to restrict the maximum memory allocated by a single statement.

(Minimal) Effective Allocation Limit [GB]	3.316,0
Maximal Statement Size / Effective Allocation Limit [%]	1,2
Average Statement Size / Effective Allocation Limit [%]	1,2

19.6.1.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.



19.6.2 SQL Statement 4b16d586f03f44c13a09f85d9ea3c97f

EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

SELECT

"RYEAR" , "DRCRK" , "RPMAX" , "ACTIV" , "RMVCT" , "RTCUR" , "RUNIT" , "AWTYP" , "RLDNR" , "RRCTY" , "RVERS" ,
"LOGSYS" , "RACCT" , "COST_ELEM" , "RBUKRS" , "RCNTR" , "PRCTR" , "RFAREA" , "RBUSA" , "KOKRS" ,
"SEGMENT" , "SCNTR" , "PPRCTR" , "SFAREA" , "SBUSA" , "RASSC" , "PSEGMENT" , SUM("TSL08") "TSL08" , SUM("TSL09") "TSL09" ,
SUM("HSL08") "HSL08" , SUM("HSL09") "HSL09" , SUM("KSL08") "KSL08" , SUM(... Text cut,
see SAP Note 3210457

FROM

"FAGLFLEXT"

WHERE

"RCLNT" = ? AND "RYEAR" = ? AND "RPMAX" = ? AND "RLDNR" = ?

GROUP BY

"RYEAR" , "DRCRK" , "RPMAX" , "ACTIV" , "RMVCT" , "RTCUR" , "RUNIT" , "AWTYP" , "RLDNR" , "RRCTY" , "RVERS" ,
"LOGSYS" , "RACCT" , "COST_ELEM" , "RBUKRS" , "RCNTR" , "PRCTR" , "RFAREA" , "RBUSA" , "KOKRS" ,
"SEGMENT" , "SCNTR" , "PPRCTR" ,

"SFAREA" , "SBUSA" , "RASSC" , "PSEGMENT"

ORDER BY

"FAGLFLEXT" . "ACTIV" , "FAGLFLEXT" . "AWTYP" , "FAGLFLEXT" . "COST_ELEM" , "FAGLFLEXT" . "KOKRS" ,
"FAGLFLEXT" . "LOGSYS" , "FAGLFLEXT" . "PPRCTR" , "FAGLFLEXT" . "PRCTR" , "FAGLFLEXT" . "PSEGMENT" ,
"FAGLFLEXT" . "RACCT" , "FAGLFLEXT" . "RASSC" , "FAGLFLEXT" . "RBUKRS" , "FAGLFLEXT" . "RBUSA" ,
"FAGLFLEXT" . "RCNTR" , "FAGLFLEXT" . "RFAREA" , "FAGLFLEXT" . "RLDNR" , "FAGLFLEXT" . "RMVCT" ,
"FAGLFLEXT" . "RRCTY" , "FAGLFLEXT" . "RTCUR" , "FAGLFLEXT" . "RUNIT" , "FAGLFLEXT" . "RVERS" ... Text cut,
see SAP Note 3210457

19.6.1.4 Origin of SQL Statement

Statement Impact

Indicator	Value
Estimated Total CPU Load	0,31
Max. Transaction Consumption per Report [%] (05.09.2024 between 00 and 01:00)	49
Max. Memory Consumption [%]	2,39
Note: DBA CHECK	DBA Statement as identified by its statement hash can also be found in other sections of this report!
Other Sections Dealing with this Statement	CM00L
SAP HANA SQL Statements in P4H -> Top ACDOCA Statements (Elapsed Time)	

19.6.2.1 Analysis of Where Clause

Table	Field	Operator
?	RCLNT	=
?	RLDNR	=
?	RPMAX	=
?	RYEAR	=

19.6.2.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	6.432	214.389.646	190.977.345	238.496.543
PREPARATION	5	171.632		
LOCK DURATION	0	0		

19.6.2.3 Memory Consumption

The following table provides an overview of the memory consumption of the analyzed SQL statement as obtained from the monitoring view M_SQL_PLAN_STATISTICS (or – if not yet available – M_SQL_PLAN_CACHE), that is, without taking a specific time interval into account.

Activity	Total Memory [GB]	Average Memory [MB]	Minimal Memory [MB]	Maximal Memory [MB]
EXECUTION_MEMORY_SIZE	2.204	75.246,8	71.342,4	81.231,4

19.6.2.3.1 High Memory Consumption

The memory consumption of this statement is relatively high when compared with the minimum "effective allocation limit" of the index server(s) as obtained from M_SERVICE_MEMORY. See the following table for details. Note that the excessive memory consumption of a single statement might impact the stability of the whole SAP HANA system. See [SAP Note 1999997](#) for details and for an option to restrict the maximum memory allocated by a single statement.

(Minimal) Effective Allocation Limit [GB]	3.316,0
Maximal Statement Size / Effective Allocation Limit [%]	2,4
Average Statement Size / Effective Allocation Limit [%]	2,2

19.6.2.4 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.6.2.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
ACDOCA	SAPABAP1	COLUMN	RANGE	2.704.162.085	lxbell106
FAGLFLEXT_BCK	SAPABAP1	COLUMN	Table not partitioned	453.851	lxbell106
FINSC_LD_CMP	SAPABAP1	COLUMN	Table not partitioned	301	lxbell106
FINSC_LEDGER_REP	SAPABAP1	COLUMN	Table not partitioned	20	lxbell106

19.6.2.6 Compatibility View Access

SAP Simple Finance offers a simplified data model. Several tables have become obsolete and are removed. To allow existing coding to continue to work, these tables are replaced by views with the same name, known as "Compatibility Views". As a result, read access to these objects is still possible; however, performance is affected since it is now an access to a view instead of a simple table. For some general background information, see <https://launchpad.support.sap.com/#/notes/1976487> [SAP Note 1976487].

See [SAP Note 2221298](#) for advice about using the views GLT0, FAGLFLEXT, FMGLFLEXT, PSGLFLEXT, and JVGLFLEXT in SAP S/4HANA Finance.

19.6.2.7 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding
PE4	BIREQU_000016F4_20240906160659	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000222C_20240905080407	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_000026C0_20240903102002	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000649C_20240904081119	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00006B4C_20240901010200	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00006FD4_20240901235914	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00007830_20240905160649	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_000099E0_20240904160553	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00009ED8_20240905004617	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000C2B0_20240906100745	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000D564_20240906140721	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000D6A4_20240905100813	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000DE34_20240905140951	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_0000FC7C_20240906005056	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00011774_20240903141159	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	BIREQU_00011C1C_20240903120851	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	ODQR_20240901_010520_000057_F	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	ODQR_20240902_005941_000012_F	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	ODQR_20240904_005612_000011_F	GP,GLX,FAGLFLEXT	1.013	11.08.2024	
PE4	ODQR_20240906_011146_000003_F	GP,GLX,FAGLFLEXT	1.013	11.08.2024	

19.6.3 SQL Statement 1ed799084d3b66280a30da065a24a8ce

```

SELECT
/* FDA WRITE */ DISTINCT "LIPS" . "VBELN" , "LIPS" . "POSNR"
FROM
( "LIPS" INNER JOIN "LIKp" ON "LIPS" . "MANDT" = "LIKp" . "MANDT" AND "LIKp" . "VBELN" = "LIPS" . "VBELN" INNER
JOIN "/SPDGS/DP_LTPO" ON "LIPS" . "MANDT" = "/SPDGS/DP_LTPO" . "MANDT" AND "/SPDGS/DP_LTPO" . "VBELN"
= "LIPS" . "VBELN" AND "/SPDGS/DP_LTPO" . "POSNR" = "LIPS" . "POSNR" INNER JOIN "/SPDGS/DP_LTTRT" ON
"LIPS" . "MANDT" = "/SPDGS/DP_LTTRT" . "MANDT" AND "/SPDGS/DP_LTTRT" . "LTRNR" = "/SPDGS/DP_LTPO" .
"LTRNR" LEFT OUTER JOIN "LIPS" "LIPS_SPLIT" ON "LIPS" . "MANDT" = "LIPS_SPLIT" . "MANDT" ... Text cut, see
SAP Note 3210457
S "t_00" ("C_0" NVARCHAR(10))
WHERE
" LIPS" . "MANDT" = ? AND "LIPS" . "VBELN" = "t_00" . "C_0" AND "LIPS" . "POSNR" < N'900000' AND ( "LIPS" . "KOSTA"
<> N'C' OR "LIPS" . "PKSTA" <> N'C' ) AND NOT "LIPS" . "/SPDGS/BERNR" = ? AND "LIKp" . "KOSTK" <> ? AND (
"LIKp" . "KOSTK" <> N'C' OR "LIKp" . "PKSTK" <> N'C' ) AND ( "LIPS_SPLIT" . "POSNR" IS NULL OR "LIPS_SPLIT" .
"PKSTA" <> N'C' ) AND NOT EXISTS ( SELECT ... Text cut, see SAP Note 3210457
FROM
"LIPS" "LIPS_SPLIT_KOSTA_CHK"
WHERE
" LIPS_SPLIT_KOSTA_CHK" . "MANDT" = ? AND "LIPS_SPLIT_KOSTA_CHK" . "VBELN" = "LIPS" . "VBELN" AND
" LIPS_SPLIT_KOSTA_CHK" . "UECHA" = "LIPS" . "POSNR" AND "LIPS_SPLIT_KOSTA_CHK" . "KOSTA" <> N'C' ) AND
NOT EXISTS ( SELECT *
FROM

```

```
"/SPDGS/DP_LTPO" "LTPO_CHK"
```

WHERE

```
"LTPO_CHK" . "MANDT" = ? AND "LTPO_CHK" . "VBELN" = "LIPS" . "VBELN" AND "LTPO_CHK" . "POSNR" = "LIPS" . "POSNR" AND ( "LTPO_CHK" . "DPS_STATUS" < ? OR "LTPO_CHK" . "DPS_STATUS" > ? OR EXISTS ( SELECT *
```

FROM

```
"/SPDGS/DP_LTTRT"
```

WHERE

```
"/SPDGS/DP_LTTRT" . "MANDT" = ? AND "/SPDGS/DP_LTTRT" . "LTRNR" = "LTPO_CHK" . "LTRNR" AND ( "/SPDGS/DP_LTTRT" . "DPS_STATUS" < ? OR "/SPDGS/DP_LTTRT" . "DPS_STATUS" > ? OR "/SPDGS/DP_LTTRT" . "PROPL_VORNR" < ? OR "/SPDGS/DP_LTTRT" . "PROPL_VORNR" > ? ) ) ) WITH RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	3,55
Contribution to Total Execution Time [%]	1,56
Maximal CPU Consumption per Hour [%] (02.09.2024 between 04:00 and 05:00)	1,29
Maximal Memory Consumption [%] (08.09.2024 -- 14:00:47)	0,20

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)

SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)

SAP HANA SQL Statements in P4H -> Top Statement (Maximal Memory in Trace)

19.6.3.1 Analysis of Where Clause

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
/SPDGS/DP_LTPO	DPS_STATUS	<	43.763.553.446	0
/SPDGS/DP_LTPO	DPS_STATUS	>	43.763.553.446	0
/SPDGS/DP_LTPO	MANDT	=	58.733	1.578
/SPDGS/DP_LTPO	POSNR	=	1.233.968.357.092	1.346
/SPDGS/DP_LTPO	VBELN	=	17.668.498.790	50.888
/SPDGS/DP_LTTRT	DPS_STATUS	<	13.742.433.748	0
/SPDGS/DP_LTTRT	DPS_STATUS	>	13.742.433.748	0
/SPDGS/DP_LTTRT	LTRNR	=	800.629.565.648	4.705
/SPDGS/DP_LTTRT	MANDT	=	5.267	606
/SPDGS/DP_LTTRT	PROPL_VORNR	<	16.088.335.804	0
/SPDGS/DP_LTTRT	PROPL_VORNR	>	16.088.335.804	0
LIKPK	KOSTK	<>	149	0
LIKPK	PKSTK	<>	0	0
LIPS	/SPDGS/BERNR	=	362.847.821	0
LIPS	KOSTA	<>	2.675.213.835	0
LIPS	MANDT	=	1.026.725.156	25
LIPS	PKSTA	<>	189.457.314	0
LIPS	POSNR	<	184.023.485	78
LIPS	UECHA	=	11.605.803.223	0
LIPS	VBELN	=	340.896.160.916	290.987

19.6.3.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	54.680	15.849.339	13.417.395	35.549.070
PREPARATION	9	2.549		

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
LOCK DURATION	0	0		

19.6.3.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.6.3.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,18	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,53	strong correlation

19.6.3.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
/SPDGS/DP_LTPO	SAPABAP1	COLUMN	Table not partitioned	252.737.741	lxbell106
LIPS	SAPABAP1	COLUMN	Table not partitioned	177.905.317	lxbell106
/SPDGS/DP_LTRT	SAPABAP1	COLUMN	Table not partitioned	123.009.545	lxbell106
LIKPI	SAPABAP1	COLUMN	Table not partitioned	28.236.497	lxbell106

19.6.3.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	ZLELIEFUPD	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	ZLE_LIEFERUPDATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_1100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_1110_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_5200_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_1200_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_6100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_7100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_BFG_PRODE GA_VON_FSJ_TK	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution

19.6.4 SQL Statement a2d2cd2e3b6482daab0e4ae40e50efd4

SELECT

```
/* FDA WRITE */ DISTINCT "NSDM_V_MCHB" . "MATNR" , "NSDM_V_MCHB" . "WERKS" , "NSDM_V_MCHB" .
"LGORT" , "NSDM_V_MCHB" . "CHARG" , "NSDM_V_MCHB" . "CLABS" , "NSDM_V_MCHB" . "CINSM" ,
"NSDM_V_MCHB" . "CSPEM" , "NSDM_V_MCHB" . "CEINM" , "NSDM_V_MCHB" . "CUMLM"
```

FROM

```
"NSDM_V_MCHB" , ? AS "t_00" ("C_0" NVARCHAR(40), "C_1" NVARCHAR(4), "C_2" NVARCHAR(4), "C_3"
NVARCHAR(10))
```

WHERE

```
"NSDM_V_MCHB" . "MANDT" = ? AND "NSDM_V_MCHB" . "MATNR" = "t_00" . "C_0" AND "NSDM_V_MCHB" .
"WERKS" = "t_00" . "C_1" AND "NSDM_V_MCHB" . "LGORT" = "t_00" . "C_2" AND "NSDM_V_MCHB" . "CHARG" =
?t_00" . "C_3" WITH RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	3,98
Contribution to Total Execution Time [%]	1,15
Maximal CPU Consumption per Hour [%] (05.09.2024 between 22:00 and 23:00)	5,78
Maximal Memory Consumption [%]	0,58

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)

SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)

SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

19.6.4.1 Analysis of Where Clause

Table	Field	Operator
?	CHARG	=
?	LGORT	=
?	MANDT	=
?	MATNR	=
?	WERKS	=



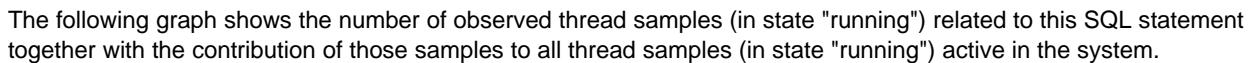
19.6.4.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	40.215	13.404.915	266.968	53.333.966
PREPARATION	2	549		
LOCK DURATION	0	0		

19.6.4.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.



19.6.4.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,34	medium correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,16	weak correlation

19.6.4.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106
MCHB	SAPABAP1	COLUMN	Table not partitioned	19.955.650	Ixbell106

19.6.4.6 Origin of SQL Statement



The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding
PE4	BI_PROCESS_ABAP	/IBP/LECC_MAINU14	131	15.05.2024	<input checked="" type="checkbox"/>
PE4	Z_IBP_CH_DAILY_DATALOAD	/IBP/LECC_MAINU14	131	15.05.2024	<input checked="" type="checkbox"/>

19.6.5 SQL Statement 1463aac81f86aae55e3a5117328902c7

```

SELECT
/* FDA READ */ "RCLNT", "RLDNR", "RBUKRS", "GJAHR", "BELNR", "DOCLN", "RYEAR", "XREVERSING",
"XREVERSED", "RACCT", "HSL", "BUDAT", "BLDAT", "BSCHL", "TIMESTAMP", "KTOPL", "SGTXT", "KUNNR",
"KOART", "UMSKZ", "AUGDT", "AUGBL", "AUGGJ", "XRAGL", "CPUDT", "AEDAT", "UPDDT", "CPUDT_AUGBL",
"AEDAT_AUGBL", "UPDDT_AUGBL", "DELTADATUM"
FROM
"YCO_ACDOCA_V"
WHERE
"RCLNT" = ? AND ( "DELTADATUM" >= N'20240829' OR "GJAHR" = N'2024' AND ( "XREVERSED" = N'X' OR "XRAGL" = N'X' ) ) AND ("RBUKRS" = N'156' AND "KTOPL" = N'9900' OR "RBUKRS" = N'425' AND "KTOPL" = N'9900' OR
"RBUKRS" = N'471' AND "KTOPL" = N'9900' OR "RBUKRS" = N'472' AND "KTOPL" = N'9900' OR "RBUKRS" = N'474'
AND "KTOPL" = N'9900' OR "RBUKRS" = N'483' AND "KT
OPL" = N'9900' )
ORDER BY
"YCO_ACDOCA_V". "RCLNT", "YCO_ACDOCA_V". "RLDNR", "YCO_ACDOCA_V". "RBUKRS", "YCO_ACDOCA_V".
"GJAHR", "YCO_ACDOCA_V". "BELNR", "YCO_ACDOCA_V". "DOCLN" LIMIT ? WITH
RANGE_RESTRICTION(CURRENT)

```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	0,06
Maximal CPU Consumption per Hour [%] (03.09.2024 between 21:00 and 22:00)	1,15
Maximal Memory Consumption [%]	5,44

19.6.5.1 Analysis of Where Clause

Table	Field	Operator
?	DELTADATUM	>=
?	GJAHR	=
?	KTOPL	=
?	RBUKRS	=
?	RCLNT	=
?	XRAGL	=
?	XREVERSED	=

19.6.5.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	863	862.671.263	862.671.263	862.671.263
PREPARATION	0	351.840		

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
LOCK DURATION	0	0		

19.6.5.3 Memory Consumption

The following table provides an overview of the memory consumption of the analyzed SQL statement as obtained from the monitoring view M_SQL_PLAN_STATISTICS (or – if not yet available – M_SQL_PLAN_CACHE), that is, without taking a specific time interval into account.

Activity	Total Memory [GB]	Average Memory [MB]	Minimal Memory [MB]	Maximal Memory [MB]
EXECUTION_MEMORY_SIZE	180	184.578,9	184.578,9	184.578,9

19.6.5.3.1 High Memory Consumption

The memory consumption of this statement is relatively high when compared with the minimum "effective allocation limit" of the index server(s) as obtained from M_SERVICE_MEMORY. See the following table for details. Note that the excessive memory consumption of a single statement might impact the stability of the whole SAP HANA system. See [SAP Note 1999997](#) for details and for an option to restrict the maximum memory allocated by a single statement.

(Minimal) Effective Allocation Limit [GB]	3.316,0
Maximal Statement Size / Effective Allocation Limit [%]	5,4
Average Statement Size / Effective Allocation Limit [%]	5,4

19.6.5.4 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.6.5.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
ACDOCA	SAPABAP1	COLUMN	RANGE	2.704.162.085	Ixbell106
BSEG	SAPABAP1	COLUMN	Table not partitioned	435.751.193	Ixbell106
BKPF	SAPABAP1	COLUMN	Table not partitioned	111.312.718	Ixbell106

19.6.5.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	APPLICATION_SOURCE	Transaction / Jobname
PE4	%_T0BZ9S:69	SAPMSSY1

19.7 Top Statement (Maximal Memory in Trace)

This section shows the top statements according to the maximal memory usage as of observed in the expensive statement trace, i.e. M_EXPENSIVE_STATEMENTS.

See the following table for details of the selection:

Database Start	03.09.2024 -- 09:29:32
Data Collection	09.09.2024 -- 06:26:01
Analysis Type	Analysis of Expensive Statement Trace
Data Source	M_EXPENSIVE_STATEMENTS
First Day	02.09.2024
Last Day	08.09.2024

The selected statements - identified by their "Statement Hash" - are listed in the following table. Further details of these statements can be found in the subsections.

Statement Hash	Time / Execution [us]	Records / Execution	Time / Record [us]	Maximum Memory [MB]
1ed799084d3b66280a30da065a24a8ce	15.890.533,2	187,2	84.875,4	6.892,0
5b6b0c4cac744b57ccdc9f28b3babd53	15.559.035,3	67,3	231.229,7	6.892,0
ebafc21b0c5bef1bb45ea363de9fcf68	5.093.509,4	0,0	480.487.721,0	6.047,0
26bc41c5e2bc1b34aceda84b0c24b064	9.663.065,0	425,5	22.707,9	4.776,0
49d161708a6557e7d65404346be1882e	10.729.802,0	77,4	138.598,1	4.726,0

19.7.1 SQL Statement 1ed799084d3b66280a30da065a24a8ce

```

SELECT
/* FDA WRITE */ DISTINCT "LIPS" . "VBELN" , "LIPS" . "POSNR"
FROM
( "LIPS" INNER JOIN "LIKp" ON "LIPS" . "MANDT" = "LIKp" . "MANDT" AND "LIKp" . "VBELN" = "LIPS" . "VBELN" INNER
JOIN "/SPDGS/DP_LTPO" ON "LIPS" . "MANDT" = "/SPDGS/DP_LTPO" . "MANDT" AND "/SPDGS/DP_LTPO" . "VBELN" =
"LIPS" . "VBELN" AND "/SPDGS/DP_LTPO" . "POSNR" = "LIPS" . "POSNR" INNER JOIN "/SPDGS/DP_LTTRT" ON
"LIPS" . "MANDT" = "/SPDGS/DP_LTTRT" . "MANDT" AND "/SPDGS/DP_LTTRT" . "LTRNR" = "/SPDGS/DP_LTPO" .
"LTRNR" LEFT OUTER JOIN "LIPS" . "LIPS_SPLIT" ON "LIPS" . "MANDT" = "LIPS_SPLIT" . "MANDT" ... Text cut, see
SAP Note 3210457
S "t_00" ("C_0" NVARCHAR(10))
WHERE
"LIPS" . "MANDT" = ? AND "LIPS" . "VBELN" = "t_00" . "C_0" AND "LIPS" . "POSNR" < N'900000' AND ( "LIPS" . "KOSTA"
<> N'C' OR "LIPS" . "PKSTA" <> N'C' ) AND NOT "LIPS" . "/SPDGS/BERNR" = ? AND "LIKp" . "KOSTK" <> ? AND (
"LIKp" . "KOSTK" <> N'C' OR "LIKp" . "PKSTK" <> N'C' ) AND ( "LIPS_SPLIT" . "POSNR" IS NULL OR "LIPS_SPLIT" .
"PKSTA" <> N'C' ) AND NOT EXISTS ( SELECT ... Text cut, see SAP Note 3210457
FROM
"LIPS" . "LIPS_SPLIT_KOSTA_CHK"
```

WHERE

```
"LIPS_SPLIT_KOSTA_CHK" . "MANDT" = ? AND "LIPS_SPLIT_KOSTA_CHK" . "VBELN" = "LIPS" . "VBELN" AND
"LIPS_SPLIT_KOSTA_CHK" . "UECHA" = "LIPS" . "POSNR" AND "LIPS_SPLIT_KOSTA_CHK" . "KOSTA" <> N'C' ) AND
NOT EXISTS ( SELECT *
FROM
"/SPDGS/DP_LTPO" "LTPO_CHK"
WHERE
"LTPO_CHK" . "MANDT" = ? AND "LTPO_CHK" . "VBELN" = "LIPS" . "VBELN" AND "LTPO_CHK" . "POSNR" = "LIPS" .
"POSNR" AND ( "LTPO_CHK" . "DPS_STATUS" < ? OR "LTPO_CHK" . "DPS_STATUS" > ? OR EXISTS ( SELECT *
FROM
"/SPDGS/DP_LTTRT"
WHERE
"/SPDGS/DP_LTTRT" . "MANDT" = ? AND "/SPDGS/DP_LTTRT" . "LTRNR" = "LTPO_CHK" . "LTRNR" AND (
"/SPDGS/DP_LTTRT" . "DPS_STATUS" < ? OR "/SPDGS/DP_LTTRT" . "DPS_STATUS" > ? OR "/SPDGS/DP_LTTRT" .
"PROPL_VORNR" < ? OR "/SPDGS/DP_LTTRT" . "PROPL_VORNR" > ? ) ) ) WITH RANGE_RESTRICTION('CURRENT')
Statement Impact
```

Indicator	Value
Contribution to Total CPU Load [%]	3,55
Contribution to Total Execution Time [%]	2,70
Maximal CPU Consumption per Hour [%] (02.09.2024 between 04:00 and 05:00)	1,29
Maximal Memory Consumption [%] (08.09.2024 -- 14:00:47)	0,20

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement
SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top Statements (Total Memory)
SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)

19.7.1.1 Analysis of Where Clause

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
/SPDGS/DP_LTPO	DPS_STATUS	<	43.763.553.446	0
/SPDGS/DP_LTPO	DPS_STATUS	>	43.763.553.446	0
/SPDGS/DP_LTPO	MANDT	=	58.733	1.578
/SPDGS/DP_LTPO	POSNR	=	1.233.968.357.092	1.346
/SPDGS/DP_LTPO	VBELN	=	17.668.498.790	50.888
/SPDGS/DP_LTTRT	DPS_STATUS	<	13.742.433.748	0
/SPDGS/DP_LTTRT	DPS_STATUS	>	13.742.433.748	0
/SPDGS/DP_LTTRT	LTRNR	=	800.629.565.648	4.705
/SPDGS/DP_LTTRT	MANDT	=	5.267	606
/SPDGS/DP_LTTRT	PROPL_VORNR	<	16.088.335.804	0
/SPDGS/DP_LTTRT	PROPL_VORNR	>	16.088.335.804	0
LIKPK	KOSTK	<>	149	0
LIKPK	PKSTK	<>	0	0
LIPS	/SPDGS/BERNR	=	362.847.821	0
LIPS	KOSTA	<>	2.675.213.835	0
LIPS	MANDT	=	1.026.725.156	25
LIPS	PKSTA	<>	189.457.314	0
LIPS	POSNR	<	184.023.485	78
LIPS	UECHA	=	11.605.803.223	0
LIPS	VBELN	=	340.896.160.916	290.987

19.7.1.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	55.910	15.888.034	13.417.395	35.549.070
PREPARATION	9	2.499		
LOCK DURATION	0	0		

19.7.1.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.7.1.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,18	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,53	strong correlation

19.7.1.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
/SPDGS/DP_LTPO	SAPABAP1	COLUMN	Table not partitioned	252.737.741	Ixbell106
LIPS	SAPABAP1	COLUMN	Table not partitioned	177.905.317	Ixbell106
/SPDGS/DP_LTRT	SAPABAP1	COLUMN	Table not partitioned	123.009.545	Ixbell106
LIKIP	SAPABAP1	COLUMN	Table not partitioned	28.236.497	Ixbell106

19.7.1.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the



information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	ZLELIEFUPD	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	ZLE_LIEFERUPDATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_1100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_1110_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_5200_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_1200_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_6100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_7100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_BFG_PRODE GA_VON_FSJ_TK	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution

19.7.2 SQL Statement 5b6b0c4cac744b57ccdc9f28b3babd53

```

SELECT
/* FDA WRITE */ DISTINCT "/SPDGS/DP_LTPO" . "LTRNR" , "/SPDGS/DP_LTPO" . "LTRPO" , "/SPDGS/DP_LTPO" .
"VBELN" , "/SPDGS/DP_LTPO" . "POSNR" , "/SPDGS/DP_LTPO" . "KIMENG" , "/SPDGS/DP_LTPO" . "KOMME" ,
"/SPDGS/DP_LTPO" . "NTGEW_I" , "/SPDGS/DP_LTPO" . "XEGAL" , "/SPDGS/DP_LTPO" . "DPS_STATUS" ,
"/SPDGS/DP_LTPO" . "ZZKIMENG_PAZ" , "/SPDGS/DP_LTTRT" . "OBJ"
FROM
( "LIPS" INNER JOIN "LIKp" ON "LIPS" . "MANDT" = "LIKp" . "MANDT" AND "LIKp" . "VBELN" = "LIPS" . "VBELN" INNER
JOIN "/SPDGS/DP_LTPO" ON "LIPS" . "MANDT" = "/SPDGS/DP_LTPO" . "MANDT" AND "/SPDGS/DP_LTPO" . "VBELN"
= "LIPS" . "VBELN" AND "/SPDGS/DP_LTPO" . "POSNR" = "LIPS" . "POSNR" INNER JOIN "/SPDGS/DP_LTTRT" ON
"LIPS" . "MANDT" = "/SPDGS/DP_LTTRT" . "MANDT" AND "/SPDGS/DP_LTTRT" . "LTRNR" = "/SPDGS/DP_LTPO" .
"LTRNR" LEFT OUTER JOIN "LIPS" "LIPS_SPLIT" ON "LIPS" . "MANDT" = "LIPS_SPLIT" . "MANDT" ... Text cut, see
SAP Note 3210457
S "t_00" ("C_0" NVARCHAR(10))
WHERE
"LIPS" . "MANDT" = ? AND "LIPS" . "VBELN" = "t_00" . "C_0" AND "LIPS" . "POSNR" < N'900000' AND ( "LIPS" . "KOSTA"
<> N'C' OR "LIPS" . "PKSTA" <> N'C') AND NOT "LIPS" . "/SPDGS/BERNR" = ? AND "LIKp" . "KOSTK" <> ? AND (
"LIKp" . "KOSTK" <> N'C' OR "LIKp" . "PKSTK" <> N'C') AND ( "LIPS_SPLIT" . "POSNR" IS NULL OR "LIPS_SPLIT" .
"PKSTA" <> N'C') AND NOT EXISTS ( SELECT ... Text cut, see SAP Note 3210457
FROM
"LIPS" "LIPS_SPLIT_KOSTA_CHK"
WHERE
"LIPS_SPLIT_KOSTA_CHK" . "MANDT" = ? AND "LIPS_SPLIT_KOSTA_CHK" . "VBELN" = "LIPS" . "VBELN" AND
"LIPS_SPLIT_KOSTA_CHK" . "UECHA" = "LIPS" . "POSNR" AND "LIPS_SPLIT_KOSTA_CHK" . "KOSTA" <> N'C') AND
NOT EXISTS ( SELECT *
FROM
"/SPDGS/DP_LTPO" "LTPO_CHK"
WHERE
"LTPO_CHK" . "MANDT" = ? AND "LTPO_CHK" . "VBELN" = "LIPS" . "VBELN" AND "LTPO_CHK" . "POSNR" = "LIPS" .
"POSNR" AND ( "LTPO_CHK" . "DPS_STATUS" < ? OR "LTPO_CHK" . "DPS_STATUS" > ? ) OR EXISTS ( SELECT *
FROM
"/SPDGS/DP_LTTRT"

```

WHERE

```
"/SPDGS/DP_LTTRT" . "MANDT" = ? AND "/SPDGS/DP_LTTRT" . "LTRNR" = "LTPO_CHK" . "LTRNR" AND (
"/SPDGS/DP_LTTRT" . "DPS_STATUS" < ? OR "/SPDGS/DP_LTTRT" . "DPS_STATUS" > ? OR "/SPDGS/DP_LTTRT" .
"PROPL_VORNR" < ? OR "/SPDGS/DP_LTTRT" . "PROPL_VORNR" > ? )) ) WITH RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	1,38
Contribution to Total Execution Time [%]	1,12
Maximal CPU Consumption per Hour [%] (08.09.2024 between 22:00 and 23:00)	0,81
Maximal Memory Consumption [%] (08.09.2024 -- 14:05:11)	0,20

19.7.2.1 Analysis of Where Clause

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
/SPDGS/DP_LTPO	DPS_STATUS	<	43.763.553.446	0
/SPDGS/DP_LTPO	DPS_STATUS	>	43.763.553.446	0
/SPDGS/DP_LTPO	MANDT	=	58.733	1.578
/SPDGS/DP_LTPO	POSNR	=	1.233.968.357.092	1.346
/SPDGS/DP_LTPO	VBELN	=	17.668.498.790	50.888
/SPDGS/DP_LTTRT	DPS_STATUS	<	13.742.433.748	0
/SPDGS/DP_LTTRT	DPS_STATUS	>	13.742.433.748	0
/SPDGS/DP_LTTRT	LTRNR	=	800.629.565.648	4.705
/SPDGS/DP_LTTRT	MANDT	=	5.267	606
/SPDGS/DP_LTTRT	PROPL_VORNR	<	16.088.335.804	0
/SPDGS/DP_LTTRT	PROPL_VORNR	>	16.088.335.804	0
LIKPI	KOSTK	<>	149	0
LIKPI	PKSTK	<>	0	0
LIPS	/SPDGS/BERNR	=	362.847.821	0
LIPS	KOSTA	<>	2.675.213.835	0
LIPS	MANDT	=	1.026.725.156	25
LIPS	PKSTA	<>	189.457.314	0
LIPS	POSNR	<	184.023.485	78
LIPS	UECHA	=	11.605.803.223	0
LIPS	VBELN	=	340.896.160.916	290.987

19.7.2.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	23.100	15.555.484	13.380.915	39.250.860
PREPARATION	5	3.551		
LOCK DURATION	0	0		

19.7.2.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.7.2.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,19	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,34	medium correlation

19.7.2.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
/SPDGS/DP_LTPO	SAPABAP1	COLUMN	Table not partitioned	252.737.741	Ixbell106
LIPS	SAPABAP1	COLUMN	Table not partitioned	177.905.317	Ixbell106
/SPDGS/DP_LTRT	SAPABAP1	COLUMN	Table not partitioned	123.009.545	Ixbell106
LIKIP	SAPABAP1	COLUMN	Table not partitioned	28.236.497	Ixbell106

19.7.2.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	Z_DP_6220_LIEFERUPDATE	ZLE_LIEFE RUPDATE_F01	244	15.01.2022		LE	Logistics Execution

19.7.3 SQL Statement ebafc21b0c5bef1bb45ea363de9fcf68

SELECT



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```
/* FDA READ */ "DOCCUSTOMER" , "DOC SOURCEID" , "CREATE TSTMP" , "DOCTYPE" , "DOCID" ,
"CUSTOMERNAME" , "CUSTOMEREMAIL" , "LASTCHANGED" , "SYSTEMID" , "SYSTEMCLIENT"

FROM
/* Entity name: YQM_I_DOC_ARCH_MAILS_TO_SENT */ "YQM_DOCARCHMAILS"
"YQM_I_DOC_ARCH_MAILS_TO_SENT"

WHERE
"MANDT" = ? AND "CREATE TSTMP" BETWEEN ? AND ? WITH RANGE_RESTRICTION('CURRENT')
Statement Impact
```

Indicator	Value
Contribution to Total CPU Load [%]	0,22
Maximal CPU Consumption per Hour [%] (04.09.2024 between 09:00 and 10:00)	0,25
Maximal Memory Consumption [%] (08.09.2024 -- 22:30:18)	0,17

19.7.3.1 Analysis of Where Clause

Table	Field	Operator
?	CREATE TSTMP	BETWEEN
?	MANDT	=

19.7.3.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	2.704	4.777.390	4.047.890	6.927.931
PREPARATION	179	316.119		
LOCK DURATION	0	0		

19.7.3.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.7.3.4 Tables



In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
AUFK	SAPABAP1	COLUMN	Table not partitioned	1.679.344	Ixbell106
BUT000	SAPABAP1	COLUMN	Table not partitioned	447.670	Ixbell106
ADR6	SAPABAP1	COLUMN	Table not partitioned	195.824	Ixbell106
CVL_CUST_LINK	SAPABAP1	COLUMN	Table not partitioned	115.549	Ixbell106
KNA1	SAPABAP1	COLUMN	Table not partitioned	115.314	Ixbell106

19.7.3.5 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding
PE4	Z_MYM_5800_GG_DOKUMENT EN_ARCHIV	YCL_QM_DOC_ARCH_SEND_EMA ILS==CM004	2	13.11.2022	

19.7.4 SQL Statement 26bc41c5e2bc1b34aceda84b0c24b064

SELECT

```
/* FDA WRITE */ DISTINCT "MCHB" . "MATNR" , "MCHB" . "WERKS" , "MCHB" . "LGORT" , "MCHB" . "CHARG" ,
"CHARG" . "MCHB" . "CSPEM" "SPEME" , "MCHB" . "CLABS" "LABST" , "MCHB" . "CUMLM" "UMLME" , "MCH1" . "LICHA" , "MCH1"
. "VFDAT" , "MCH1" . "HSDAT" , "MCH1" . "LWEDT" , "MCH1" . "LIFNR" , "MCH1" . "FVDT1" , "MCH1" . "FVDT2" , "MCH1"
. "FVDT3" , "MCH1" . "FVDT4" , "MCH1" . "HSDAT" , "MCH1" . "HERKL" ... Text cut, see SAP Note 3210457
```

FROM

```
( /* Redirected table: MCHB */ "NSDM_V_MCHB" "MCHB" INNER JOIN "MCH1" ON "MCHB" . "MANDT" = "MCH1" .
"MANDT" AND "MCHB" . "MATNR" = "MCH1" . "MATNR" AND "MCHB" . "CHARG" = "MCH1" . "CHARG" INNER JOIN /*
Redirected table: MARD */ "NSDM_V_MARD" "MARD" ON "MCHB" . "MANDT" = "MARD" . "MANDT" AND "MCHB" .
"MATNR" = "MARD" . "MATNR" AND "MCHB" . "WERKS" = "MARD" . "WERKS" AND "MCHB" . "LGORT" = "MARD" .
"LGORT" INNER JOIN "T001L" "LOT" ... Text cut, see SAP Note 3210457
```

```
" . "MANDT" AND "LFA1" . "LIFNR" = "MCH1" . "LIFNR" ) , ? AS "t_00" ("C_0" NVARCHAR(40) , "C_1" NVARCHAR(4))
```

WHERE

```
"MCHB" . "MANDT" = ? AND "MCHB" . "MATNR" = "t_00" . "C_0" AND "MCHB" . "WERKS" = "t_00" . "C_1" AND (
"MCHB" . "CLABS" <> ? OR "MCHB" . "/CWM/CLABS" <> ? OR "MCHB" . "CSPEM" <> ? OR "MCHB" . "CINSM" <> ? OR
"MCHB" . "/CWM/CSPEM" <> ? OR "MCHB" . "/CWM/CINSM" <> ? ) WITH RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	0,35
Maximal CPU Consumption per Hour [%] (02.09.2024 between 06:00 and 07:00)	0,68
Maximal Memory Consumption [%] (08.09.2024 -- 23:45:11)	0,14

19.7.4.1 Analysis of Where Clause

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MCHB	/CWM/CINSM	<>	0	0
MCHB	/CWM/CLABS	<>	0	0
MCHB	/CWM/CSPEM	<>	0	0
MCHB	CINSM	<>	0	0
MCHB	CLABS	<>	3.464.484	0
MCHB	CSPEM	<>	428	0
MCHB	MANDT	=	1.664.623.450	15.895

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MCHB	MATNR	=	117.125.555.078	11.107
MCHB	WERKS	=	3.481.808.769	13.634

19.7.4.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	2.939	9.637.494	753.912	11.533.818
PREPARATION	8	25.571		
LOCK DURATION	0	0		

19.7.4.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.7.4.4 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106
MCH1	SAPABAP1	COLUMN	Table not partitioned	21.054.470	Ixbell106
MCHB	SAPABAP1	COLUMN	Table not partitioned	19.955.650	Ixbell106
MARD	SAPABAP1	COLUMN	Table not partitioned	718.435	Ixbell106
LFA1	SAPABAP1	COLUMN	Table not partitioned	171.346	Ixbell106

19.7.4.5 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	ZMMCHBS	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	ZMM_BESTAND_AUSBUCHEN	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	ZPPS	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	ZPP_PRODUCTION_PLANNING	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	Z_MM_1100_BESTAND_AUSBUCHEN1	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	Z_MM_1100_BESTAND_AUSBUCHEN9	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	Z_MM_5200_BESTAND_DISPO_MAIL	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	Z_MM_5200_BESTAND_TK_WARE	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	Z_QM_5200_QM_SF_KONTROLLE_MHD	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	Z_QM_5200_QM_SF_KONTROLL_MHD_SA	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft

19.7.5 SQL Statement 49d161708a6557e7d65404346be1882e

SELECT

```
/* FDA WRITE */ DISTINCT "MCHB" . "MATNR" , "MCHB" . "WERKS" , "MCHB" . "LGORT" , "MCHB" . "CHARG" ,
"MCHB" . "CSPEM" "SPEME" , "MCHB" . "CLABS" "LABST" , "MCHB" . "CUMLM" "UMLME" , "MCH1" . "LICHA" , "MCH1"
. "VFDAT" , "MCH1" . "HSDAT" , "MCH1" . "LWEDT" , "MCH1" . "LIFNR" , "MCH1" . "FVDT1" , "MCH1" . "FVDT2" , "MCH1"
. "FVDT3" , "MCH1" . "FVDT4" , "MCH1" . "HSDAT" , "MCH1" . "HERKL" ... Text cut, see SAP Note 3210457
```

FROM

```
( /* Redirected table: MCHB */ "NSDM_V_MCHB" "MCHB" INNER JOIN "MCH1" ON "MCHB" . "MANDT" = "MCH1" .
"MANDT" AND "MCHB" . "MATNR" = "MCH1" . "MATNR" AND "MCHB" . "CHARG" = "MCH1" . "CHARG" INNER JOIN /*
Redirected table: MARD */ "NSDM_V_MARD" "MARD" ON "MCHB" . "MANDT" = "MARD" . "MANDT" AND "MCHB" .
"MATNR" = "MARD" . "MATNR" AND "MCHB" . "WERKS" = "MARD" . "WERKS" AND "MCHB" . "LGORT" = "MARD" .
"LGORT" INNER JOIN "T001L" "LOT" ... Text cut, see SAP Note 3210457
```

```
" . "MANDT" AND "LFA1" . "LIFNR" = "MCH1" . "LIFNR" ) , ? AS "t_00" ("C_0" NVARCHAR(40) , "C_1" NVARCHAR(4))
```

WHERE

```
"MCHB" . "MANDT" = ? AND "MCHB" . "MATNR" = "t_00" . "C_0" AND "MCHB" . "WERKS" = "t_00" . "C_1" AND NOT
"MCHB" . "LGORT" = ? AND "MCH1" . "HSDAT" = ? AND ( "MCHB" . "CLABS" <> ? OR "MCHB" . "/CWM/CLABS" <> ?
OR "MCHB" . "CSPEM" <> ? OR "MCHB" . "CINSM" <> ? OR "MCHB" . "/CWM/CSPEM" <> ? OR "MCHB" .
"/CWM/CINSM" <> ? ) WITH RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	0,00
Maximal CPU Consumption per Hour [%] (06.09.2024 between 14:00 and 15:00)	0,01
Maximal Memory Consumption [%] (08.09.2024 -- 14:00:34)	0,14

19.7.5.1 Analysis of Where Clause

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MCH1	HSDAT	=	861.282.929	0
MCHB	/CWM/CINSM	<>	0	0
MCHB	/CWM/CLABS	<>	0	0
MCHB	/CWM/CSPEM	<>	0	0

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MCHB	CINSM	<>	0	0
MCHB	CLABS	<>	3.464.484	0
MCHB	CSPEM	<>	428	0
MCHB	LGORT	=	99.765.534.569	14.738
MCHB	MANDT	=	1.664.623.450	15.895
MCHB	MATNR	=	117.125.555.078	11.107
MCHB	WERKS	=	3.481.808.769	13.634

19.7.5.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	123	10.212.961	9.534.070	10.615.569
PREPARATION	6	516.841		
LOCK DURATION	0	0		

19.7.5.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.7.5.4 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106
MCH1	SAPABAP1	COLUMN	Table not partitioned	21.054.470	Ixbell106
MCHB	SAPABAP1	COLUMN	Table not partitioned	19.955.650	Ixbell106
MARD	SAPABAP1	COLUMN	Table not partitioned	718.435	Ixbell106
LFA1	SAPABAP1	COLUMN	Table not partitioned	171.346	Ixbell106

19.7.5.5 Origin of SQL Statement



The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	Z_QM_5200_MHDWE	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft
PE4	Z_QM_5200_MHDWE_10:00	LZMM_GENERALLU03	401	11.08.2024		MM	Materialwirtschaft

19.8 Top Statements (Thread Samples)

This section shows the top statements according to the number of observed "threads" ("Number of Samples") in the SERVICE THREAD SAMPLES. A statement might occupy a high number of threads if (a) it has a long execution time, (b) it is executed very often, or (c) it has a highly parallelized execution. In any case, it shows statements with a high resource consumption on the SAP HANA database.

See the following table for details of the selection:

Database Start	03.09.2024 -- 09:29:32
Data Collection	09.09.2024 -- 06:26:01
Analysis Type	Analysis of Thread Samples
Data Source	HOST_SERVICE_THREAD_SAMPLES
First Day	02.09.2024
Last Day	08.09.2024

The selected statements - identified by their "Statement Hash" - are listed in the following table. Further details of these statements can be found in the subsections.

Statement Hash	Time / Execution [us]	Records / Execution	Time / Record [us]	Number of Samples
8b2f1074afb23d1c2cb19fcaecf67b00	365.559,9	3,4	106.480,1	14.224
a2d2cd2e3b6482daab0e4ae40e50efd4	11.887.448,9	39.263,5	302,8	5.758
1ed799084d3b66280a30da065a24a8ce	15.890.533,2	187,2	84.875,4	5.139
1e4b0471db23f73bac5fbe890a49fcfb	73.900,5	1,0	74.133,9	4.286
e1e746510efab6b3c433909529143774	55.931,8	0,7	79.564,2	3.842

19.8.1 SQL Statement 8b2f1074afb23d1c2cb19fcaecf67b00

SELECT

```
/* FDA WRITE */ DISTINCT "NSDM_E_MARD_AGG" . "MATNR" , "NSDM_E_MARD_AGG" . "WERKS" ,
"NSDM_E_MARD_AGG" . "LGORT" , "NSDM_E_MARD_AGG" . "LBBSA" , "NSDM_E_MARD_AGG" . "SOBKZ" ,
"NSDM_E_MARD_AGG" . "STOCK_QTY" , "NSDM_E_MARD_AGG" . "STOCK_VKWRT" , "NSDM_E_MARD_AGG" .
"GJPER_MAX" , "NSDM_E_MARD_AGG" . "/CWM/STOCK_QTY"
```

FROM

```
/* Entity name: NSDM_E_MARD_AGG */ "NSDM_V_MARD_AGG" "NSDM_E_MARD_AGG" , ? AS "t_00" ("C_0"
NVARCHAR(40), "C_1" NVARCHAR
(4), "C_2" NVARCHAR(4))
```

WHERE

```
"NSDM_E_MARD_AGG" . "MANDT" = ? AND "NSDM_E_MARD_AGG" . "MATNR" = "t_00" . "C_0" AND
"NSDM_E_MARD_AGG" . "WERKS" = "t_00" . "C_1" AND "NSDM_E_MARD_AGG" . "LGORT" = "t_00" . "C_2" WITH
RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	9,82
Contribution to Total Execution Time [%]	19,54
Maximal CPU Consumption per Hour [%] (06.09.2024 between 18:00 and 19:00)	4,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table
SAP HANA SQL Statements in P4H -> Top Statements (CPU Peak Hour)

19.8.1.1 Analysis of Where Clause

Table	Field	Operator
?	LGORT	=
?	MANDT	=
?	MATNR	=
?	WERKS	=

19.8.1.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	365.560	569	5.924.195
PREPARATION	0		
LOCK DURATION	0		

19.8.1.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

PE4	Z_BIL_BFG _CSBFF_DE SADV_IN_OUT Early Watch Alert	CL_NSMD_S ELECT_MAR D=====CM003	15	18.04.2021		LO-MD-MM	Materialstam m
PE4	ZMDG_BESTANDAUSB NDPUFFER_1100_A	CL_NSMD_S ELECT_MAR D=====CM003	15	18.04.2021		LO-MD-MM	Materialstam m
SELECT	PE4 Z SD_6100 LIEFERUP */DISTINCT "NSDM_V_MCHB" ."MATNR", "NSDM_V_MCHB" ."WERKS", "NSDM_V_MCHB" . consumption per hour system. Such large values make this statement "highly responsible for peaks in the memory ONSPD_PUFFER_10SPM" ."NSDM_MARCBH" ."CEINM", "NSDM_V_MCHB" ."CUMLM" FROM Distribution	D=====CM003	15	18.04.2021		LO-MD-MM	Materialstam m
	"NSDM_V_MCHB" ? AS "t_00" ."C_0" NVARCHAR(40), "C_1" NVARCHAR(4), "C_2" NVARCHAR(4) "C_3" CPU consumption index server(s) - Threads (running) from this SQL NVARCHAR(10))					0,65	strong correlation
	Memory consumption index server(s) - Threads (running) from this SQL					0,39	medium correlation
PE4 Z BC_5800 START C4	CL_NSMD_S Statement MCHB =? AND NSDM_V_MCHB" .MATNR =? AND "NSDM_V_MCHB" . FAULTY_DOC ELECT_MAR D=====CM003	C4	15	18.04.2021	"t_00" ."C_0" AND "NSDM_V_MCHB" . "WERKS" =? ."C_1" AND "NSDM_V_MCHB" ."LGORT" =? ."C_2" AND "NSDM_V_MCHB" . "t_00" ."C_3" WITH RANGE_RESTRICTION(CURRENT)	LO-MD-MM	Materialstam m
19.8.1.5 Tables Statement Impact							
Indicator							
In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.							
Table Name	Schemas Name	Table Type	Partition Type	Number of Records	Host	3,98	
CONTRIBUTION_TO_TOTAL_CPU_HOURS [%]							
CONTRIBUTION_TO_TOTAL_EXECUTION_TIME [%]	SAFABAP	COLUMN	Table not partitioned	428.376.569	lxbell106	1,56	
MAXIMAL_CPU_CONSUMPTION_PER_HOUR [%]	(05.09.2024 between 22:00 and 23:00)					5,78	
MAXIMAL_MEMORY_CONSUMPTION [%]						0,58	
19.8.1.6 Origin of SQL Statement							
Note: The statement as identified by its statement hash can also be found in other sections of this report:							
Other Sections Dealing with this Statement							
The following table shows details of the applications responsible for the statement. This information is based on the SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time).							
Information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the SAP HANA SQL Statements in P4H -> Top Statements (Total Memory).							
List of prepared or active statements, and is not necessarily complete.							
EXPATIAL_GEOLOCMENTS IN CL_NSMD_S	Report	Line	Last Changed on:	SAP ✓	ing	LO-MD-MM	Materialstam m
SID Transaction / Jobname	ELECT_MAR	D=====CM003				Application Component	Description
19.8.2.1 Analysis of Where Clause							
Table	D=====CM003	Field		Operator			
?		CHARG		=			
?		LGORT		=			
?		MANDT		=			
?		MATNR		=			
?		WERKS		=			
19.8.2.2 Time Consumption							
The following table gives an overview of the time consumption of the analyzed SQL statement.							
Activity	Average Time [us]	Minimal Time [us]	Maximal Time [us]				
TOTAL EXECUTION	11.886.852	266.968	52.944.580				
PREPARATION	597						
LOCK DURATION	0						
19.8.2.3 Statement History (Thread Sample 'Running')							
The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.							

PE4	Z_IBP_CH_DAILY_DATALOAD	/IBP/LECC_MAINU14	131	15.05.2024	
EarlyWatch Alert	Bell Schweiz AG			02.09.2024 - 08.09.2024	

19.8.3 SQL Statement 1ed799084d3b66280a30da065a24a8ce

```

SELECT
/* FDA WRITE */ DISTINCT "LIPS" . "VBELN" , "LIPS" . "POSNR"
FROM
( "LIPS" INNER JOIN "LIKp" ON "LIPS" . "MANDT" = "LIKp" . "MANDT" AND "LIKp" . "VBELN" = "LIPS" . "VBELN" INNER
JOIN "/SPDGS/DP_LTPO" ON "LIPS" . "MANDT" = "/SPDGS/DP_LTPO" . "MANDT" AND "/SPDGS/DP_LTPO" . "VBELN"
= "LIPS" . "VBELN" AND "/SPDGS/DP_LTPO" . "POSNR" = "LIPS" . "POSNR" INNER JOIN "/SPDGS/DP_LTTRT" ON
"LIPS" . "MANDT" = "/SPDGS/DP_LTTRT" . "MANDT" AND "/SPDGS/DP_LTTRT" . "LTRNR" = "/SPDGS/DP_LTPO" .
"LTRNR" LEFT OUTER JOIN "LIPS" "LIPS_SPLIT" ON "LIPS" . "MANDT" = "LIPS_SPLIT" . "MANDT" ... Text cut, see
SAP Note 3210457
S "t_00" ("C_0" NVARCHAR(10))
WHERE
"LIPS" . "MANDT" = ? AND "LIPS" . "VBELN" = "t_00" . "C_0" AND "LIPS" . "POSNR" < N'900000' AND ( "LIPS" . "KOSTA"
<> N'C' OR "LIPS" . "PKSTA" <> N'C' ) AND NOT "LIPS" . "/SPDGS/BERNR" = ? AND "LIKp" . "KOSTK" <> ? AND (
"LIKp" . "KOSTK" <> N'C' OR "LIKp" . "PKSTK" <> N'C' ) AND ( "LIPS_SPLIT" . "POSNR" IS NULL OR "LIPS_SPLIT" .
"PKSTA" <> N'C' ) AND NOT EXISTS ( SELECT ... Text cut, see SAP Note 3210457
FROM
"LIPS" "LIPS_SPLIT_KOSTA_CHK"
WHERE
"19.8.2.4 Correlation with Index Server Resource Consumption
" "LIPS_SPLIT_KOSTA_CHK" . "MANDT" = ? AND "LIPS_SPLIT_KOSTA_CHK" . "VBELN" = "LIPS" . "VBELN" AND
"LIPS_SPLIT_KOSTA_CHK" . "UECHA" = "LIPS" . "POSNR" AND "LIPS_SPLIT_KOSTA_CHK" . "KOSTA" <> N'C' ) AND
NOT EXISTS ( SELECT * FROM
"/SPDGS/DP_LTPO" "LTPO_CHK"
Distribution Correlation Coefficient Comment
WHERE
CPU consumption index server(s) - Threads (running) from this SQL Statement
"LTPO_CHK" . "MANDT" = ? AND "LTPO_CHK" . "VBELN" = "LIPS" . "VBELN" AND "LTPO_CHK" . "DPS_STATUS" < ? OR "LTPO_CHK" . "DPS_STATUS" > ? OR EXISTS ( SELECT *
Memory consumption index server(s) - Threads (running) from this SQL Statement
"LTPO_CHK" . "MANDT" = ? AND "LTPO_CHK" . "VBELN" = "LIPS" . "VBELN" AND "LTPO_CHK" . "DPS_STATUS" < ? OR "LTPO_CHK" . "DPS_STATUS" > ? OR EXISTS ( SELECT *
FROM
Statement
"/SPDGS/DP_LTTRT"
WHERE

```

19.8.2.5 Tables

" /SPDGS/DP_LTTRT" . "MANDT" = ? AND "/SPDGS/DP_LTTRT" . "LTRNR" = "LTPO_CHK" . "LTRNR" AND (
"/SPDGS/DP_LTTRT" . "DPS_STATUS" < ? OR "/SPDGS/DP_LTTRT" . "DPS_STATUS" > ? OR "/SPDGS/DP_LTTRT" .
"PROPL_VORNR" < 20 OR "/SPDGS/DP_LTTRT" . "PROPL_VORNR" > 20) WITH RANGE RESTRICTION(CURRENT)

In the following, the 10 tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Statement Impact	Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MAXIMAL CPU Consumption of SQL Statement	MANDT_C_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106 Value
Contribution to Total CPU Load [%]	MCHB	SAPABAP1	COLUMN	Table not partitioned	19.955.650	Ixbell106 3,55
Contribution to Total Execution Time [%]						2,70
MAXIMAL CPU Consumption of SQL Statement						1,29
Maximal Memory Consumption [%] (08.09.2024 -- 14:00:47)						0,20

Note: The statement has been identified by its application background to be found in other sections of this report based on the

other sections dealing with SAP HANA in the "application source" connected to the statement in the "thread samples" or the

list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding
SAP	ABAP PROCESS_ABAP	/IBP/LECC_MAINU14	131	15.05.2024	
SAP	ABAP PROCESS_ABAP	/IBP/LECC_MAINU14	131	15.05.2024	

19.8.3.1 Analysis of Where Clause

Table	Field	Operator	Scanned Record Count	Index Lookup Count
/SPDGS/DP_LTPO	DPS_STATUS	<	43.763.553.446	0
/SPDGS/DP_LTPO	DPS_STATUS	>	43.763.553.446	0
/SPDGS/DP_LTPO	MANDT	=	58.733	1.578
/SPDGS/DP_LTPO	POSNR	=	1.233.968.357.092	1.346



Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
/SPDGS/DP_LTPO	VBELN	=	17.668.498.790	50.888
/SPDGS/DP_LTTRT	DPS_STATUS	<	13.742.433.748	0
/SPDGS/DP_LTTRT	DPS_STATUS	>	13.742.433.748	0
/SPDGS/DP_LTTRT	LTRNR	=	800.629.565.648	4.705
/SPDGS/DP_LTTRT	MANDT	=	5.267	606
/SPDGS/DP_LTTRT	PROPL_VORNR	<	16.088.335.804	0
/SPDGS/DP_LTTRT	PROPL_VORNR	>	16.088.335.804	0
LIKPK	KOSTK	<>	149	0
LIKPK	PKSTK	<>	0	0
LIPS	/SPDGS/BERNR	=	362.847.821	0
LIPS	KOSTA	<>	2.675.213.835	0
LIPS	MANDT	=	1.026.725.156	25
LIPS	PKSTA	<>	189.457.314	0
LIPS	POSNR	<	184.023.485	78
LIPS	UECHA	=	11.605.803.223	0
LIPS	VBELN	=	340.896.160.916	290.987

19.8.3.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	15.888.034	13.417.395	35.549.070
PREPARATION	2.499		
LOCK DURATION	0		

19.8.3.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.8.3.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory

or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,18	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,53	strong correlation

19.8.3.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
/SPDGS/DP_LTPO	SAPABAP1	COLUMN	Table not partitioned	252.737.741	Ixbell106
LIPS	SAPABAP1	COLUMN	Table not partitioned	177.905.317	Ixbell106
/SPDGS/DP_LTRT	SAPABAP1	COLUMN	Table not partitioned	123.009.545	Ixbell106
LIKPI	SAPABAP1	COLUMN	Table not partitioned	28.236.497	Ixbell106

19.8.3.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	ZLELIEFUPD	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	ZLE_LIEFERUPDATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_1100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_1110_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_DP_5200_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_1200_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_6100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_7100_LIEFERUP DATE	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution
PE4	Z_SD_BFG_PRODE GA_VON_FSJ_TK	ZLE_LIEFE RUPDATE_F01	185	15.01.2022		LE	Logistics Execution

19.8.4 SQL Statement 1e4b0471db23f73bac5fdbd890a49fcfb

SELECT

"MANDT", "MATNR", "WERKS", "LFGJA", "LFMON", "UMLMC", "TRAME", "VKUMC", "VKTRW", "GLGMR", "VKGLG", "BWESB", "/CWM/UMLMC", "/CWM/TRAME", "/CWM/BWESB"

FROM

/* Redirected table: MARCH */ "NSDM_V_MARCH" "MARCH"

WHERE

"MANDT" = ? AND "MATNR" = ? AND "WERKS" = ? AND "LFGJA" = ? AND "LFMON" = ? WITH
RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	2,96
Contribution to Total Execution Time [%]	2,75
Maximal CPU Consumption per Hour [%] (06.09.2024 between 20:00 and 21:00)	1,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

19.8.4.1 Analysis of Where Clause

Table	Field	Operator	Supported by Single Column Index	Compression	Distinct Values	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
MATDOC_E_XTRACT	LFGJA	=					
MATDOC_E_XTRACT	LFMON	=					
MATDOC_E_XTRACT	MANDT	=				18.578.493.586	0
MATDOC_E_XTRACT	MATNR	=					
MATDOC_E_XTRACT	WERKS	=				744.150.903.406	32

19.8.4.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	73.900	1.782	407.221
PREPARATION	0		
LOCK DURATION	0		

19.8.4.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.8.4.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,27	weak correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,46	medium correlation

19.8.4.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106

19.8.4.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

19.8.5 SQL Statement e1e746510efab6b3c433909529143774

EarlyWatch Alert

Bell Schweiz AG

02.09.2024 - 08.09.2024

PE41Z_PDS_5800_PULG_DR02SPFEE SIDEC Transaction / Jobname	LMG22U42 Report	71 Line	20.11.2020 Last	SAP Coding	LO-MD-MM Application Component	Materialstam m Description
/* FDA READ */ "MANDT" , "KAPPL" , "OBJKY" , "KSCHL" , "SCHANGED_PARNR" , "PARVW"						"ERUHR" ,
"ADRNR" , "NASHA" , "ANZOF_FAUSTY" , "VSDAT" , "VSURA" , "VSURB" , "MANUE" , "DATVR" , "MHRV" , "DATRE" ,						
"USNAME" , "VSTAT" , "AKTIV" , "TCODE" , "LDEST" , "DSNAM" , "DSUF1" , "DSUF2" , "DIMME" , "DELET" , "TELFX" ,						
"DOC" , "TELX1" , "TELTX" , "AENDE" , "REPET" , "REPID" , "PFLD1" , "PFLD2" ... Text cut, see SAP Note 3210457						
FROM "NAST" WHERE						

"MANDT" = ? AND "KAPPL" = ? AND "OBJKY" BETWEEN ? AND ? WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	2,65
Contribution to Total Execution Time [%]	5,50
Maximal CPU Consumption per Hour [%] (05.09.2024 between 18:00 and 19:00)	1,96

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top Statements (CPU Peak Hour)

19.8.5.1 Analysis of Where Clause

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
NAST	KAPPL	=	367.120.951.616	153.535
NAST	MANDT	=	455.015.762	446
NAST	OBJKY	BETWEEN	9.861.158.340.719	430.957

19.8.5.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	55.932	117	2.555.595
PREPARATION	0		
LOCK DURATION	0		

19.8.5.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.



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19.8.5.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,57	strong correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,26	weak correlation

19.8.5.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
NAST	SAPABAP1	COLUMN	Table not partitioned	173.361.704	Ixbell106

19.8.5.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	-component---main--packM atInput_submit_6	LVMMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung
PE4	/SCWM/PRDO	LVMMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung
PE4	VL03N	LVMMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung
PE4	Z_DGS_ALL_PDAO_UND_PUFFE R_1200_A	LVMMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung

19.9 Top Statements (CPU Peak Hour)

This section shows the top statements according to the number of observed "threads" ("Number of Samples") in the SERVICE THREAD SAMPLES. A statement might occupy a high number of threads if (a) it has a long execution time, (b) it is executed very often, or (c) it has a highly parallelized execution. In any case, it shows statements with a high resource consumption on the SAP HANA database.

For this section, the hour with the highest number of thread samples in thread state "Running" is determined, that is, the "CPU peak hour". The top statements observed in this hour are listed and analyzed.

Hour of Maximal CPU Consumptiion

From	To
03.09.2024 -- 11:00:00	03.09.2024 -- 12:00:00

See the following table for details of the selection:

Database Start	03.09.2024 -- 09:29:32
Data Collection	09.09.2024 -- 06:26:01
Analysis Type	Analysis of Thread Samples
Data Source	HOST_SERVICE_THREAD_SAMPLES
First Day	02.09.2024
Last Day	08.09.2024

The selected statements - identified by their "Statement Hash" - are listed in the following table. Further details of these statements can be found in the subsections.

Statement Hash	Time / Execution [us]	Records / Execution	Time / Record [us]	Number if Samples in CPU Peak Hour
8b2f1074afb23d1c2cb19fcaecf67b00	365.559,9	3,4	106.480,1	168
1a09d387962c36c486a876cccd1530de1	5.713,1	0,0	0,0	121
e1e746510efab6b3c433909529143774	55.931,8	0,7	79.564,2	82
374e79d3f1bcf1210b1cbf6b3b5dc01	204.983.650,0	261,0	785.378,0	36
fe58fdb9c5186c91129bcb34b1e3cf59	150.371,0	8,8	17.180,9	35

19.9.1 SQL Statement 8b2f1074afb23d1c2cb19fcaecf67b00

SELECT

```
/* FDA WRITE */ DISTINCT "NSDM_E_MARD_AGG" . "MATNR" , "NSDM_E_MARD_AGG" . "WERKS" ,
"NSDM_E_MARD_AGG" . "LGORT" , "NSDM_E_MARD_AGG" . "LBBSA" , "NSDM_E_MARD_AGG" . "SOBKZ" ,
"NSDM_E_MARD_AGG" . "STOCK_QTY" , "NSDM_E_MARD_AGG" . "STOCK_VKWRT" , "NSDM_E_MARD_AGG" .
"GJPER_MAX" , "NSDM_E_MARD_AGG" . "/CWM/STOCK_QTY"
```

FROM

```
/* Entity name: NSDM_E_MARD_AGG */ "NSDM_V_MARD_AGG" "NSDM_E_MARD_AGG" , ? AS "t_00" ("C_0"
NVARCHAR(40), "C_1" NVARCHAR
```



(4, "C_2" NVARCHAR(4))

WHERE

```
"NSDM_E_MARD_AGG" . "MANDT" = ? AND "NSDM_E_MARD_AGG" . "MATNR" = "t_00" . "C_0" AND
"NSDM_E_MARD_AGG" . "WERKS" = "t_00" . "C_1" AND "NSDM_E_MARD_AGG" . "LGORT" = "t_00" . "C_2" WITH
RANGE_RESTRICTION('CURRENT')
```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	9,82
Contribution to Total Execution Time [%]	19,54
Maximal CPU Consumption per Hour [%] (06.09.2024 between 18:00 and 19:00)	4,07

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement
SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top MATDOC Statements (Elapsed Time)
SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)
SAP HANA SQL Statements in P4H -> Statements on Top Scanned Table

19.9.1.1 Analysis of Where Clause

Table	Field	Operator
?	LGORT	=
?	MANDT	=
?	MATNR	=
?	WERKS	=

19.9.1.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	404.219	365.560	569	5.924.195
PREPARATION	0	0		
LOCK DURATION	0	0		

19.9.1.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.9.1.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,65	strong correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,39	medium correlation

19.9.1.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	lxbell106

19.9.1.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

PE4 SID	Z_BIL_BEGI TRANSACTION FCSTOF10DOC SAPNAME OUT	CL_NSDM_S Report SELECT_MAR D=====CM003	15 Line	18.04.2021 Last Changed on:	SAP Coding	LO-MD-MM Application Component	Materialstam m
PE4	ZDP_LFSTATN	CL_NSDM_S	15	18.04.2021	<input checked="" type="checkbox"/>	LO-MD-MM	Materialstam m
PE4	Z_DGS_ALL_PDAO_U ND_PUFFER_1100_A	ELEN\$DMAB SELECT_MAR==CM003	15	18.04.2021	<input checked="" type="checkbox"/>	LO-MD-MM	Materialstam m
PE4	ZLE_LIEFERUPDATE	DE_NSDM_S==CM003	15	18.04.2021	<input checked="" type="checkbox"/>	LO-MD-MM	Materialstam m
PE4	Z_DGS_ALL_PDAO_U ND_PUFFER_1110_D	ELEN\$DMAB SELECT_MAR==CM003	15	18.04.2021	<input checked="" type="checkbox"/>	LO-MD-MM	Materialstam m
PE4	ZMM_BESTAND_AUSB	DE_NSDM_S==CM003	15	18.04.2021		LO-MD-MM	Materialstam m
PE4	ZCSHEN100_LIEFERUP DATE	ELEN\$DMAB SELECT_MAR==CM003 D=====CM003	15	18.04.2021	<input checked="" type="checkbox"/>	LO-MD-MM	Materialstam m

19.9.2 SQL Statement 1a09d387962c36c486a876cccd1530de1

```

SELECT
/* FDA READ */ "CLSNAME" , 'REFCLSNAM' "ROOTNAME"
FROM "SEOCLASSDF" WHERE "CATEGORY" = N'07' AND "REFCLSNAM" IN ( SELECT
"DDCDS_DIRECT_BASE_OBJECTS" . "ENTITY_NAME"
FROM
/* Entity name: DDCDS_DIRECT_BASE_OBJECTS */ "DDCDS_G_DBO" "DDCDS_DIRECT_BASE_OBJECTS"
WHERE
"DDCDS_DIRECT_BASE_OBJECTS" . "DIRECT_BASE_OBJECT_NAME" = ? AND
"DDCDS_DIRECT_BASE_OBJECTS" . "STATE" = N'A' ) WITH RANGE_RESTRICTION('CURRENT')

```

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	2,00
Contribution to Total Execution Time [%]	3,81
Maximal CPU Consumption per Hour [%] (03.09.2024 between 11:00 and 12:00)	1,54

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)

19.9.2.1 Analysis of Where Clause

Table	Field	Operator
?	CATEGORY	=
?	DIRECT_BASE_OBJECT_NAME	=
?	REFCLSNAM	IN
?	STATE	=

19.9.2.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	78.724	5.713	2.554	495.430
PREPARATION	0	0		
LOCK DURATION	0	0		

19.9.2.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement



together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.9.2.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,49	medium correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,27	weak correlation

19.9.2.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
DDTYPES	SAPABAP1	COLUMN	Table not partitioned	2.667.440	lxbell106
SEOCLASSDF	SAPABAP1	COLUMN	Table not partitioned	592.281	lxbell106
DD25L	SAPABAP1	COLUMN	Table not partitioned	158.047	lxbell106
DDCDS_FROMCLAUSE	SAPABAP1	COLUMN	Table not partitioned	66.024	lxbell106

19.9.2.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	Z_SD_6100_ORDERS _OUT_6100_HOME	CL_ABAP_B EHV_EJOB= =====CM006	29	16.12.2022	✓	BC-ABA-LA	ABAP-Syntax, Compiler, Laufzeit

19.9.3 SQL Statement e1e746510efab6b3c433909529143774

SELECT

```
/* FDA READ */ "MANDT" , "KAPPL" , "OBJKY" , "KSCHL" , "SPRAS" , "PARNR" , "PARVW" , "ERDAT" , "ERUHR" ,
"ADRNR" , "NACHA" , "ANZAL" , "VSZTP" , "VSDAT" , "VSURA" , "VSURB" , "MANUE" , "DATVR" , "UHRVR" , "DATRE" ,
"USNAM" , "VSTAT" , "AKTIV" , "TCODE" , "LDEST" , "DSNAM" , "DSUF1" , "DSUF2" , "DIMME" , "DELET" , "TELFX" ,
"TELX1" , "TELTX" , "AENDE" , "REPET" , "REPID" , "PFLD1" , "PFLD2" ... Text cut, see SAP Note 3210457
```

FROM

"NAST"

WHERE

"MANDT" = ? AND "KAPPL" = ? AND "OBJKY" BETWEEN ? AND ? WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	2,65
Contribution to Total Execution Time [%]	5,50
Maximal CPU Consumption per Hour [%] (05.09.2024 between 18:00 and 19:00)	1,96

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top Statements (Elapsed Time)

SAP HANA SQL Statements in P4H -> Top Statements (Thread Samples)

19.9.3.1 Analysis of Where Clause

Table	Field	Operator	SCANNED RECORD COUNT	INDEX LOOKUP COUNT
NAST	KAPPL	=	367.120.951.616	153.535
NAST	MANDT	=	455.015.762	446
NAST	OBJKY	BETWEEN	9.861.158.340.719	430.957

19.9.3.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	113.788	55.932	117	2.555.595
PREPARATION	0	0		
LOCK DURATION	0	0		

19.9.3.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.9.3.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates strongly with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,57	strong correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,26	weak correlation

19.9.3.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
NAST	SAPABAP1	COLUMN	Table not partitioned	173.361.704	Ixbell106

19.9.3.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	-component---main--packM atInput_submit_6	LVMMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung
PE4	/SCWM/PRDO	LVMMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung
PE4	VL03N	LVMMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung
PE4	Z_DGS_ALL_PDAO_UND_PUFFE R_1200_A	LVMMSGU01	32	06.06.2015	✓	SD-BF-OC	Nachrichtenfindung

19.9.4 SQL Statement 374e79d3f1bcacf1210b1cbf6b3b5dc01

Indicator	Value
Contribution to Total CPU Load [%]	0,04
Maximal CPU Consumption per Hour [%] (03.09.2024 between 11:00 and 12:00)	0,46
Maximal Memory Consumption [%]	4,57

19.9.4.1 Analysis of Where Clause

Table	Field	Operator	Scanned Record Count	Index Lookup Count
?	CLABS	>		
?	LFGJA	=		
?	LFMON	=		
?	WERKS	=		
MARA	MANDT	=	321.162.059	772
MARA	MATNR	IN	7.315.666.349	57.478
MARA	ZZBWTTY	=	10.396	0

19.9.4.2 Time Consumption

The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	409	204.597.269	199.121.602	210.072.936
PREPARATION	1	386.381		
LOCK DURATION	0	0		

19.9.4.3 Memory Consumption

The following table provides an overview of the memory consumption of the analyzed SQL statement as obtained from the monitoring view M_SQL_PLAN_STATISTICS (or – if not yet available – M_SQL_PLAN_CACHE), that is, without taking a specific time interval into account.

Activity	Average Memory [MB]	Minimal Memory [MB]	Maximal Memory [MB]
EXECUTION_MEMORY_SIZE	155.198,2	155.197,4	155.199,0

19.9.4.3.1 High Memory Consumption

The memory consumption of this statement is relatively high when compared with the minimum "effective allocation limit" of the index server(s) as obtained from M_SERVICE_MEMORY. See the following table for details. Note that the excessive memory consumption of a single statement might impact the stability of the whole SAP HANA system. See [SAP Note 1999997](#) for details and for an option to restrict the maximum memory allocated by a single statement.

(Minimal) Effective Allocation Limit [GB]	3.316,0
Maximal Statement Size / Effective Allocation Limit [%]	4,6
Average Statement Size / Effective Allocation Limit [%]	4,6

19.9.4.4 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.9.4.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MATDOC_EXTRACT	SAPABAP1	COLUMN	Table not partitioned	428.376.569	Ixbell106
MCH1	SAPABAP1	COLUMN	Table not partitioned	21.054.470	Ixbell106

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
MAKT	SAPABAP1	COLUMN	Table not partitioned	725.079	Ixbell106
MARC	SAPABAP1	COLUMN	Table not partitioned	365.704	Ixbell106
MARA	SAPABAP1	COLUMN	Table not partitioned	244.655	Ixbell106

19.9.4.6 Origin of SQL Statement

The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Transaction / Jobname	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	ZCO_CHARGE	ZCO_CHAR GE_BEWER TUNG_F01	87	19.05.2024		CO	Controlling
PE4	ZCO_CHAR GE_BEWERTUNG	ZCO_CHAR GE_BEWER TUNG_F01	87	19.05.2024		CO	Controlling

19.9.5 SQL Statement fe58fdb9c5186c91129bcb34b1e3cf59

SELECT DISTINCT

"MANDT" , "LEDNR" , "OBJNR" , "GJAHR" , "WRTTP" , "VERSN" , "KSTAR" , "HRKFT" , "VRGNG" , "VBUND" , "PARGB" , "BEKNZ" , "TWAER" , "PERBL" , "MEINH" , "WTG001" , "WTG002" , "WTG003" , "WTG004" , "WTG005" , "WTG006" , "WTG007" , "WTG008" , "WTG009" , "WTG010" , "WTG011" , "WTG012" , "WTG013" , "WTG014" , "WTG015" , "WTG016" , "WOG001" , "WOG002" , "WOG003" , "WOG004" , "WOG005" , "WOG006" , "WOG007" , "WOG008" , "WOG009" ... Text cut, see SAP Note 3210457

FROM

"COSP"

WHERE

"MANDT" = ? AND "LEDNR" = ? AND "OBJNR" IN (?) AND "WRTTP" IN (? , ?) AND "VERSN" = ? AND "PERBL" = ?
WITH RANGE_RESTRICTION('CURRENT')

Statement Impact

Indicator	Value
Contribution to Total CPU Load [%]	0,40
Contribution to Total Execution Time [%]	0,73
Maximal CPU Consumption per Hour [%] (03.09.2024 between 13:00 and 14:00)	1,37

Note: The statement as identified by its statement hash can also be found in other sections of this report:

Other Sections Dealing with this Statement

SAP HANA SQL Statements in P4H -> Top ACDOMA Statements (Elapsed Time)

19.9.5.1 Analysis of Where Clause

Table	Field	Operator
?	LEDNR	=
?	MANDT	=
?	OBJNR	IN
?	PERBL	=
?	VERSN	=
?	WRTTP	IN

19.9.5.2 Time Consumption



The following table gives an overview of the time consumption of the analyzed SQL statement.

Activity	Total Time [s]	Average Time [us]	Minimal Time [us]	Maximal Time [us]
TOTAL EXECUTION	15.092	150.320	89.594	394.826
PREPARATION	5	51		
LOCK DURATION	0	0		

19.9.5.3 Statement History (Thread Sample 'Running')

The following graph shows the number of observed thread samples (in state "running") related to this SQL statement together with the contribution of those samples to all thread samples (in state "running") active in the system.

19.9.5.4 Correlation with Index Server Resource Consumption

The distribution of thread samples with the status "Running" correlates with the overall CPU or memory consumption of the system. Such a correlation indicates that this statement might be responsible for peaks in the memory or CPU consumption.

Distribution	Correlation Coefficient	Comment
CPU consumption index server(s) - Threads (running) from this SQL statement	0,33	medium correlation
Memory consumption index server(s) - Threads (running) from this SQL Statement	0,09	no significant correlation

19.9.5.5 Tables

In the following, the tables involved in the SQL statement are listed (maximum of 20), sorted by the number of records.

Table Name	Schema Name	Table Type	Partition Type	Number of Records	Host
ACDOCA	SAPABAP1	COLUMN	RANGE	2.704.162.085	lxbell106
COEP	SAPABAP1	COLUMN	HASH	281.416.660	lxbell106
COSP_BAK	SAPABAP1	COLUMN	Table not partitioned	13.470.376	lxbell106
FINSC_CMP_VERSND	SAPABAP1	COLUMN	Table not partitioned	135	lxbell106
T000	SAPABAP1	COLUMN	Table not partitioned	6	lxbell106

19.9.5.6 Origin of SQL Statement



The following table shows details of the applications responsible for the statement. This information is based on the information provided by SAP HANA in the "application source" connected to the statement in the "thread samples" or the list of "prepared" or "active" statements, and is not necessarily complete.

SID	Report	Line	Last Changed on:	SAP Coding	Application Component	Description
PE4	LKARSF21	391	31.01.2018		CO-OM	Gemeinkosten-Controlling

20 SAP NetWeaver Gateway

The gateway configuration and administration of your SAP S/4HANA system PE4 have been analyzed and areas that require your attention have been highlighted. To ensure system stability, you should implement the recommendations in the following section.

Rating	Check
✓	MetaData Cache Activation
✓	Logging Configuration
⚠	Gateway Error Logs
⚠	Important Periodic Jobs

20.1 Gateway Configuration

20.1.1 MetaData Cache Activation

Cache	Activated
Metadata Cache	Yes

The metadata cache is activated in your system as recommended.

20.1.2 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.

20.2 Gateway Administration

20.2.1 Gateway Error Logs

Number Of Errors in last 7 Days

Date	Number of Errors
07.09.2024	2
06.09.2024	228
05.09.2024	46
04.09.2024	96
03.09.2024	164
02.09.2024	308

Error types by number of occurrences

Error Message	Message ID	Number of Occurrences	Service Name	Date (e.g.)	Time (e.g.)
/IWFND/CM_MGW	033	657	YODA_PPO_S4_SRV	03.09.2024	10:19:09



Error Message	Message ID	Number of Occurrences	Service Name	Date (e.g.)	Time (e.g.)
/IWFND/CM_MGW	033	79	YODA_VH_MATERIAL_S4_SRV	03.09.2024	12:45:09
/IWFND/CM_CONSUMER	122	55	YODA_DEVICES_S4_SRV	04.09.2024	06:51:49
YODA_GR1	004	15	YODA_GR1_S4_SRV	06.09.2024	05:43:48
/IWFND/CM_CONSUMER	122	11	YODA_PPO_S4_SRV	05.09.2024	10:46:44
/IWFND/CM_CONSUMER	122	5	YODA_GR1_S4_SRV	04.09.2024	06:19:30
/IWFND/CM_MGW	033	3	YODA_GR1_S4_SRV	06.09.2024	09:50:04
/IWFND/CM_MGW	050	3	YODA_GR1_S4_SRV	04.09.2024	08:58:10
YODA_GR1	022	3	YODA_GR1_S4_SRV	03.09.2024	05:34:45
/IWBEPCM_MGW_RT	022	2	YSD_GG_SMALLPARTSSALES_SRV	04.09.2024	15:37:11

The tables above list the top gateway errors during the last 7 days.

Recommendation: Monitor the error logs periodically for errors and take administrative action to resolve these errors.

Implementation: To search for errors, call transaction /IWFND/ERROR_LOG and select the desired timeframe and error type. If you need further information about how to resolve specific errors, refer to SAP Note 3013836, which explains the most common Gateway errors. If the error cannot be resolved, open a customer message under the relevant component.

20.2.2 Important Periodic Jobs

The jobs based on the reports listed in the table below are important for the smooth operation of your system.

Report Name	Scheduled Periodically?	Scheduled Frequency	Recommended Frequency	Rating	Further Information
/IWBEPR_CLEAN_UP_QRL	X	Daily	Daily	✓	LINK
/IWBEPSUTIL_CLEANUP	X	Daily	Daily	✓	LINK
/IWFND/R_METERING_AGGREGATE	X	Daily	Daily	✓	LINK
/IWFND/R_METEERING_DELETE	X	Daily	Daily	✓	LINK
/IWFND/R_SM_CLEANUP	X	Daily	Daily	✓	LINK
/UI2/PAGE_CACHE_SYNCHRONIZE		-	Daily	⚠	LINK
/UI2/PERS_EXPIRED_DELETE		-	Monthly	⚠	LINK
/UI5/APP_INDEX_CALCULATE	X	15 minutes	Daily*	ℹ	LINK
/UI5/UPD_ODATA_METADATA_CACHE		-	2 days*	⚠	LINK
/UIFCLEAN_LREP		-	Daily	⚠	LINK

* Schedule these jobs as indicated, or more often in periods of frequent imports, depending on your use case. Take observed job duration for your system into account when tuning the schedule.

For your S/4HANA release a list of all jobs that are delivered as job definitions by the Technical Job Repository is provided in SAP Note [3389524](#).

Recommendation : See the recommended schedule for the important periodic jobs listed in the table above. One or more periodic jobs important for the smooth operation of your system are not scheduled to run regularly as recommended.

20.3 Gateway Workload Statistics

20.3.1 Gateway Processing Performance

The following tables and diagrams show the load and performance of OData gateway calls for the previous week. These diagrams show the top 10 OData calls, sorted by the following criteria:

- Total Calls
- Total Call Time in Milliseconds
- Average Data Received in Bytes

Note: A few OData requests are filtered out here, such as the one for notifications in the SAP Fiori Launchpad. This is because they are constantly called and therefore generally outweigh all other requests.

The complete OData request statistics can be viewed and further analyzed by visiting the [SAP EarlyWatch Alert Workspace](#).

Top OData Calls by Total Calls

Service	Entity set or Function	Operation	Total Calls
YODA_DYN_TILE_S4_SRV	DYN_TILESet()		576.202
YODA_DEVICES_S4_SRV	getScaleState		48.114
YODA_PPO_S4_SRV	BatchSearchSet		47.784
YODA_PPO_S4_SRV	OrderInSet		40.584
YODA_PPO_S4_SRV	StorageSearchSet		32.818
YODA_GR1_S4_SRV		batch	28.688
YODA_PPO_S4_SRV	OrderSet		28.487
YODA_PPO_S4_SRV	OrderOutSet		26.344
YODA_PPO_S4_SRV	OrderOutSet()		22.269
Z2_MMGRFIORI_SRV		batch	19.707

Top OData Calls by Total Call Time[ms]

Service	Entity set or Function	Operation	Total Call Time [ms]	Average Call Time[ms]
YODA_DYN_TILE_S4_SRV	DYN_TILESet()		100.835.350	175
YODA_DEVICES_S4_SRV	getScaleState		35.556.246	739
YODA_PPO_S4_SRV	StorageSearchSet		19.953.344	608
YODA_PPO_S4_SRV	OrderPostSet		17.457.039	1.143
YODA_PPO_S4_SRV	OrderSet		12.961.585	455
YODA_PPO_S4_SRV	OrderInSet		10.389.504	256
YODA_PPO_S4_SRV	PlantMaterialSearchSet		9.830.340	585
Z2_MMGRFIORI_SRV		batch	9.617.016	488
YODA_PPO_S4_SRV	OrderOutSet		8.482.768	322
YODA_PPO_S4_SRV	OrderOutSet()		6.458.010	290

Top OData Calls by Average Data Received[bytes]

Service	Entity set or Function	Operation	Average Data Received[bytes]
ZPM_NOTIFICATION_SRV	TDFFileSet()	value	381.385
YQM_FORM_S4_SRV	BinaryDataSet		101.145
YQM_FORM_S4_SRV	QualNotSet		54.746
INTEROP		batch	4.837
INTEROP	PersContainers		4.744

Service	Entity set or Function	Operation	Average Data Received[bytes]
YPP_PRODORDER_S4_SRV		batch	4.408
YSD_GG_SMALLPARTSSALES_SRV		batch	4.396
YQM_DOCUMENT_ARCHIVE_SRV		batch	4.337
YMD_DEBITOR_S4_SRV		batch	4.043
YQM_NOTIFICATION_S4_SRV		batch	4.031

21 UI Technologies Checks



The UI technology configuration and administration of your SAP S/4HANA system PE4 have been analyzed and areas that require your attention have been highlighted. To ensure system stability, you should implement the recommendations in the following section.

21.1 Fiori Checks for PE4

Rating	Check
✓	SAP Fiori Cache Buster Activation
✓	HTTP/2 Support
✓	SAP Fiori Launchpad Performance - Home Page Mode
⚠	SAP Fiori Launchpad - Spaces and Pages adoption
🔍	Activated but unused ICF services in UI5 apps

The SAP Fiori configuration and administration of your SAP S/4HANA system PE4 have been analyzed and problems that require your attention have been found. To ensure system stability, you should take corrective action as soon as possible.

21.1.1 SAP Fiori Cache Buster Activation

You have activated the cache buster mechanism for system PE4 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](#).

21.1.2 HTTP/2 Support

HTTP/2 support is currently active as recommended.

The HTTP protocol is one of the most frequently used protocols on the Internet. However, HTTP/1.0 and HTTP/1.1 have some disadvantages for modern applications, in particular with respect to performance in wide-area networks. To improve these problems, their successor RFC 7540 HTTP/2 has been implemented.

For more information on HTTP/2 Support, see [here](#)

Host	Parameter Name	Current Value	Rating
vpe4ap1	icm/HTTP/support_http2	TRUE	✓
vpe4ap4	icm/HTTP/support_http2	TRUE	✓
vpe4ap5	icm/HTTP/support_http2	TRUE	✓
vpe4ci	icm/HTTP/support_http2	TRUE	✓

21.1.3 SAP Fiori User Count

There were **151** different users on the system using SAP Fiori in the analyzed week.

The calculation is based on the number of different users who loaded the SAP Fiori launchpad at least once in the report timeframe. Please note that the total number also includes users who opened SAP Fiori apps via a direct URL, since the Launchpad is loaded in the background.

21.1.4 SAP Fiori Launchpad Performance - Home Page Mode

FLP Mode	Avg. Request Time [s]	Avg. Data Sent [KB]	Rating
Home Page / Groups	0,35	2,83	✓

The performance of the SAP Fiori launchpad is good. When using the SAP Fiori launchpad in the Home Page/Groups mode, its average request time should not exceed 5 seconds.

21.1.5 SAP Fiori Launchpad - Spaces and Pages adoption

Launchpad Parameters	Current Value	Recommended Value	Rating
SPACES / SPACES_ENABLE_USER		true	⚠

From SAP S/4HANA 2021, groups mode is officially deprecated, meaning that while groups currently still exist, they will be removed in a future release. The earlier you start making the shift to spaces and pages the better, given that most customers will need to consider how they want to migrate each business role.

Therefore, we recommend that one of the two parameters that enable Spaces and Pages are activated.

We found that the Spaces and Pages option was not enabled on your system.

The SPACES parameter enables the use of Spaces and Pages for your users.

The SPACES_ENABLE_USER allows the user to choose if they want to switch between Spaces and Groups.

CAUTION: If you enable SPACES and there are no spaces added to the user roles, your end users will just see a blank launchpad. If you only have defined a few pages so far, you should not yet enable the spaces mode. You can set the parameter SPACE_ENABLE_USER to true and ask users with roles that have pages available to switch to the spaces mode themselves. They can then start working with pages.

See more information on these settings in the What's New Viewer for ABAP Platform the entries: [SAP Fiori Launchpad: Home Page Deprecated \(CA-FE-FLP-COR\)](#) and [SAP Fiori Launchpad Home Page Deprecated \(CA-FE-FLP-UI\)](#).

For more information, see [Setting Parameters in SAP Fiori Customizing](#).

22 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.

22.1 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.

22.2 System Operation

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

22.3 Hardware Capacity

The following diagram or table shows the maximum CPU load from the database server and the highest CPU load among all application servers.

Report time frame: Service data was collected starting at 09.09.2024 04:56:03. This took 101 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	800470478
Solution Manager System	SPA
Solution Manager Version	SOLUTION MANAGER 7.2
Service Tool	720 SP25
Service Content Update On	02.09.2024