

















EarlyWatch Alert

1 Service Summary

Topic Rating	Topic	Subtopic Rating	Subtopic
	SAP System Configuration		
			Database - Maintenance Phases
			Operating System(s) - Maintenance Phases
	Performance Overview		
			Performance Evaluation
	Workload Distribution		
			Workload by Application Module
			DB Load Profile
	SAP System Operating		
			Availability based on Collector Protocols
			Program Errors (ABAP Dumps)
			Update Errors
			Table Reorganization
	Hardware Capacity		
	Database Administration		
	Database Server Load From Expensive SQL Statements		
			Expensive SQL Statements
			Database Server Load
	Security		
			System Recommendations (JAVA)
			System Recommendations (ABAP)
			Default Passwords of Standard Users

			Control of the Automatic Login User SAP*
			Protection of Passwords in Database Connections
			ABAP Password Policy
			Gateway and Message Server Security
			Users with Critical Authorizations
	Software Change Management		
			Number of Changes
			Emergency Changes
			Failed Changes
	Data Volume Management (DVM)		
	Java System Data		












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

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

Note: If you require assistance in resolving any concerns about the performance of the system, or if you require a technical analysis of other aspects of your system as highlighted in this report, create a customer message on component SV-BO. For details of how to set the appropriate priority level, see [SAP Note 67739](#).

Performance Indicators for PRD

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

Area	Indicators	Value	Trend
System Performance	Active Users (>400 steps)	98	
	Avg. Availability per Week	100 %	
	Avg. Response Time in Dialog Task	584 ms	
	Max. Dialog Steps per Hour	3098	
	Avg. Response Time at Peak Dialog Hour	426 ms	
	Avg. Response Time in RFC Task	1052 ms	
	Max. Number of RFCs per Hour	194	
	Avg. RFC Response Time at Peak Hour	2282 ms	
Hardware Capacity	Max. CPU Utilization on DB Server	2 %	
	Max. CPU Utilization on Appl. Server	1 %	
Database Performance	Avg. DB Request Time in Dialog Task	79 ms	

	Avg. DB Request Time for RFC	383 ms	➔
	Avg. DB Request Time in Update Task	10 ms	➔
Database Space Management	DB Size	368.24 GB	➔
	DB Growth Last Month	2.61 GB	➔

2 Landscape

2.1 Products and Components in current Landscape

Product

SID	SAP Product	Product Version
PRD	SAP ERP	6.0

Main Instances (ABAP or Java based)

SID	Main Instance
PRD	SAP ECC Server

Databases

SID	Database System	Database Version
PRD	SQL SERVER	2005

2.2 Servers in current Landscape

SAP Application Servers

SID	Host	Instance Name	Logical Host	ABAP	JAVA
PRD	SERVER	SERVER_PRD_00	SERVER	✓	✓
PRD	SERVER1	SERVER1_PRD_00	SERVER1	✓	✓
PRD	SERVER2	SERVER2_PRD_00	SERVER2	✓	✓

DB Servers

SID	Host	Logical Host (SAPDBHOST)		
PRD	SERVER	SERVER		

Components





Related SID	Component	Host	Instance Name	Logical Host
PRD	Java SCS	SERVER	SERVER_PRD_01	SERVER

2.3 Hardware Configuration

Host Overview

Host	Hardware Manufacturer	Model	CPU Type	Operating System	No. of CPUs	Memory in MB
SERVER	Dell	PowerEdge 6850	Xeon	Windows Server 2003 (x86_64) (SP 2)	16	65531
SERVER1	Dell	PowerEdge 6850	Xeon	Windows Server 2003 (x86_64) (SP 2)	16	65531
SERVER2	Dell	PowerEdge 6850	Xeon	Windows Server 2003 (x86_64) (SP 2)	16	65531

3 Service Preparation and Data Quality of PRD

Rating	Check Performed
	Service Data Quality
	ST-PI and ST-A/PI Plug-Ins
	Service Preparation Check (RTCCTOOL)
	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 [1172939](#).






3.1 Service Data Quality

For this service, data of high importance is missing.

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).

This section comprehensively shows issues with the data quality and provides hints on how to resolve them.

Legend for 'Priority' in Service Data Quality

Prio.	Explanation: Impact of Missing or Erroneous Data
	Overall important data are missing. Detecting a critical situation may fail. Report cannot be rated green or yellow.
	Data for an important chapter are missing. Some issues may not be detected. Report cannot be rated green.
	Some important check could not be processed. The report can be rated green nevertheless.
	Only checks of minor importance are affected.
	An optional check was skipped.

3.1.1 Quality of Data in Service Data Control Center (SDCC)

Quality Of Service Data In ST-PI

Prio.	Report Area affected	Details and Related ST-PI Logical Function	SAP Note

Quality Of Service Data In ST-PI

Prio.	Report Area affected	Details and Related ST-PI Logical Function	SAP Note
◆	System Administration of Server (host) SERVER and SERVER1, SERVER2	The running SAPOSCOL version does not provide the latest functions and should therefore be updated. ST-PI function: EWA_GET_HARDWAR	1309499

3.1.2 Quality of Service Data in Solution Manager Diagnostics - BW

Prio.	Report Area affected	Details and Related Infocube	SAP Note
⚠	Performance of Java System PRD	No performance data is returned from BW InfoCube. Infocube: OSMD_MPEH , metric type: APPLICATION THREADS , metric name: ACTIVETHREA	1332428
◆	Workload of Java System PRD	Reading performance data from BW is using a non-functional RFC destination. Infocube: OSMD_MPEH , metric type: OSMD_MEHI used in se	1332428
ⓘ	Workload of ABAP System PRD	Reading performance data from BW returned neither data nor an error code. A timeout may have occurred. Infocube: OCCMSMTPH used in	1332428

3.1.3 Quality of Service Data in Configuration And Change Database

Prio.	Report Area affected	Details and Related CCDB Store	SAP Note
⚠	Configuration of Java System PRD	To analyze missing data in CCDB, go to the 'Root Cause Analysis' work center (transaction SOLMAN_WORKCENTER). In the left-hand box i	1777750

3.2 ST-PI and ST-A/PI Plug-Ins

The table below shows the service plug-ins implemented and their releases and patch levels. These recommendations are derived from report RTCCTOOL. For more information about RTCCTOOL, see SAP Note [309711](#).

Rating	Plug-In	Release	Patch Level	Release Rec.	Patch Level Rec.
✓	ST-A/PI	01U_700	0	01U_700	0
✓	ST-PI	2008_1_700	23	2008_1_700	23

3.3 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 . During the check, the tool detected issues for which a RED rating was set.

Overall Status	SAP Note	Title	Tool Status	Manual Status
⚠		No SAP backend connectivity	⚠	◆

✓	69455	[Note 69455] Addon ST-A/PI 01U_700	✓	◇
✓	69455	[Note 69455] Proc. after addon impl.	✓	◇
Overall Status	SAP Note	Title	Tool Status	Manual Status
✓	69455	[Note 69455] Switch on digital content verification	✓	◇
✓	69455	[Note 69455] Allow Online data collectors	✓	◇
✓	539977	[Note 539977] Addon ST-PI 2008_1_700	✓	◇
✓	539977	[Note 539977] ST-PI 2008_1_700 Support Package 23	✓	◇
✓	12103	[Note 12103] Collectors and TCOLL	✓	◇
✓	207223	[Note 207223] EWAAlert setup	✓	◇


Recommendation:

No SAP backend connectivity

No successful connect to SAP for recommendations refresh found in last 3 weeks. As RFC connectivity will be finally shut down, HTTP or indirect connectivity via SolMan or hub system should be set up. Follow SAP note 2934203 how to set up SAP backend connectivity that can be reused by service preparation check.

4 Software Configuration For PRD

4.1 SAP Application Release - Maintenance Phases

SAP Product Version	End of Mainstream Maintenance	Status
SAP ERP 6.0	31.12.2025	

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

4.2 Support Package Maintenance - ABAP

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

Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
EA-APPL	600	22	31	SAPKGPAD22	SAP R/3 Enterprise PLM, SCM, Finance
EA-DFPS	600	15	31	SAPKGPDD15	SAP R/3 Enterprise Defense Forces & Public Security
EA-FINSERV	600	22	32	SAPKGPF22	SAP R/3 Enterprise Financial Services
EA-GLTRADE	600	15	31	SAPKGPGD15	SAP R/3 Enterprise Global Trade
EA-HR	600	105	177	SAPKGPHDA5	SAP R/3 Enterprise Human Resources
EA-IPPE	400	22	31	SAPKGPID22	SAP R/3 Enterprise Integrated Product and Process Engineering
EA-PS	600	22	31	SAPKGPPD22	SAP R/3 Enterprise Public Services
EA-RETAIL	600	15	31	SAPKGPRD15	SAP R/3 Enterprise Retail
ECC-DIMP	600	15	31	SAPK-60015INECCDIMP	ECC Discrete Industries Mill Products
ERECRUIT	600	22	31	SAPK-60022INERECRUIT	SAP E-Recruiting
FI-CA	600	22	31	SAPK-60022INFICA	FI-CA, Contract Accounts Receivable and Payable (virtuell)
FI-CAX	600	22	31	SAPK-60022INFICAX	FI-CAX: Extended FI-CA
FINBASIS	600	22	31	SAPK-60022INFINBASIS	SAP R/3 Enterprise FINBASIS

INSURANCE	600	15	31	SAPK-60015ININSURANC	INSURANCE SAP Insurance
IS-CWM	600	15	31	SAPK-60015INISCWM	IS-CWM Catch Weight Management
IS-H	600	17	60	SAPK-60017INISH	IS-Hospital
IS-M	600	15	31	SAPK-60015INISM	IS Media
IS-OIL	600	15	31	SAPK-60015INISOIL	IS-OIL SAP OIL & GAS Upstream / Downstream
IS-PS-CA	600	22	31	SAPK-60022INISPSCA	IS-PS-CA, Tax&Revenue; Campus Management
IS-UT	600	15	31	SAPK-60015INISUT	IS-UT
LSOFE	600	15	31	SAPK-60015INLSOFE	Learning Solution - Front End
PI_BASIS	2006_1_700	19	26	SAPKIPYM19	SAP R/3 Basis PlugIn


Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
SAP_ABA	700	29	36	SAPKA70029	SAP Application Basis
SAP_AP	700	30	37	SAPKNA7030	SAP Application Platform
SAP_APPL	600	22	31	SAPKH60022	SAP R/3 Standard
SAP_BASIS	700	29	36	SAPKB70029	SAP Basis Component
SAP_BW	700	31	38	SAPKW70031	SAP Business Information Warehouse
SAP_HR	600	105	177	SAPKE600A5	SAP R/3 Standard HR
SEM-BW	600	22	31	SAPKGS6022	SAP SEM Server
ST-A/PI	01U_700	0			SAP Service Tools for Applications Plug-In
ST-PI	2008_1_700	23		SAPKITLRDW	SAP Solution Tools Plug-In

4.3 Support Package Maintenance - JAVA

The software components and JDK information were not found.


4.4 Database - Maintenance Phases

Database Version	End of Standard Vendor Support*	End of Extended Vendor Support*	Comment	Status	SAP Note
SQL Server 2005	12.04.2011	12.04.2016	Planned Date		1177356

* 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.

See the "Service Pack" section in the database section for additional information.

4.5 Operating System(s) - Maintenance Phases

Host	Operating System	End of Standard Vendor Support*	End of Extended Vendor Support*	Status	SAP Note
3 Hosts	Windows Server 2003 (x86_64)	13.07.2010	14.07.2015		1177282

* Maintenance phases and duration for the OS 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 SAP Kernel Release

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

Instance (s)	SAP Kernel Release	Patch Level	Age in Months	OS Family
3 instances	721	201	90	Windows Server (x86_64)

4.6.1 Kernel out of date

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

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

4.6.2 Additional Remarks

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

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

<http://service.sap.com/sp-stacks> (SAP Support Package Stack information) and <http://service.sap.com/patches> (patch information).

5 Hardware Capacity

5.1 Overview System PRD

General

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

CPU

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




Memory

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

Server	Max. CPU load [%]	Date	Rating	RAM [MB]	Max. Paging [% of RAM]	Date	Rating
SERVER	2	25.04.2021	✓	65531	0		✓
SERVER1	1	21.04.2021	✓	65531	0		✓
SERVER2	1	19.04.2021	✓	65531	0		✓

5.2 Paging Out for Windows 2003 Hosts

The following servers showed high page out rates during the analyzed time frame.

Server	OS	RAM [MB]	Max. Pages Out / s	Hour	Date	Rating
SERVER	Windows Server 2003 (x86_64) (SP 2)	65531	459	10	21.04.2021	
SERVER1	Windows Server 2003 (x86_64) (SP 2)	65531	434	11	21.04.2021	
SERVER2	Windows Server 2003 (x86_64) (SP 2)	65531	530	13	22.04.2021	

For the servers listed above, we found at least four successive hours showing a stable page out rate (under 17 pages/s). It is likely, therefore, that Microsoft fixes KB 931308 and KB 938486 have been implemented (SAP Note

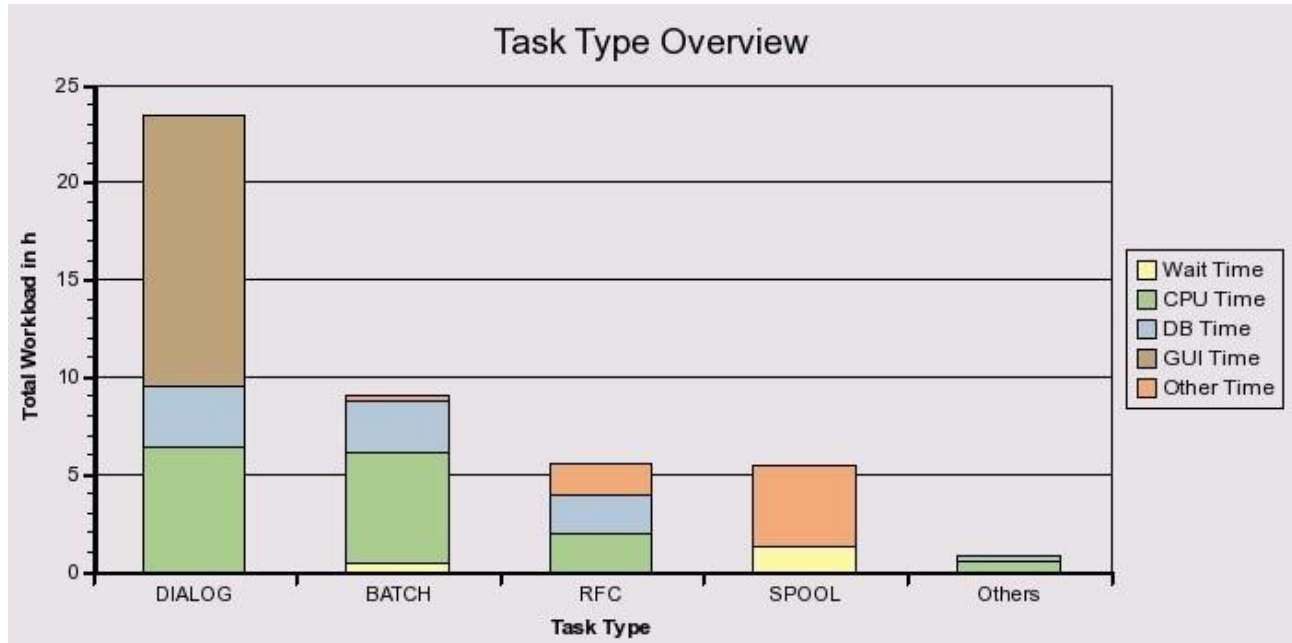
[1009297](#)). Despite this, we have detected high page out rates.

Recommendation: Consider making a more detailed analysis.

and implement improvements.

6 Workload of System PRD

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
DIALOG	23,0	0,0	6,4	3,1	13,9
BATCH	9,0	0,4	5,7	2,7	0,0
RFC	5,5	0,0	1,9	2,0	0,0
SPOOL	5,4	1,3	0,0	0,0	0,0
Others	0,8	0,0	0,5	0,3	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	131	96	2	229

6.2 Workload Distribution PRD

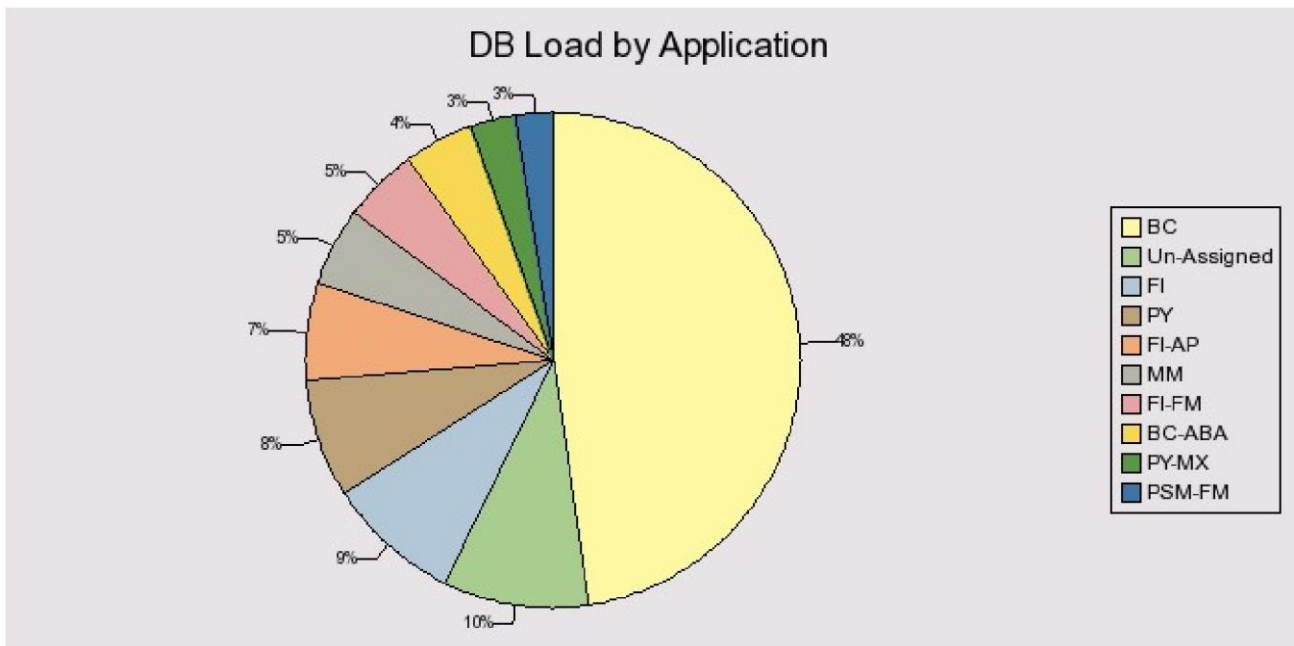
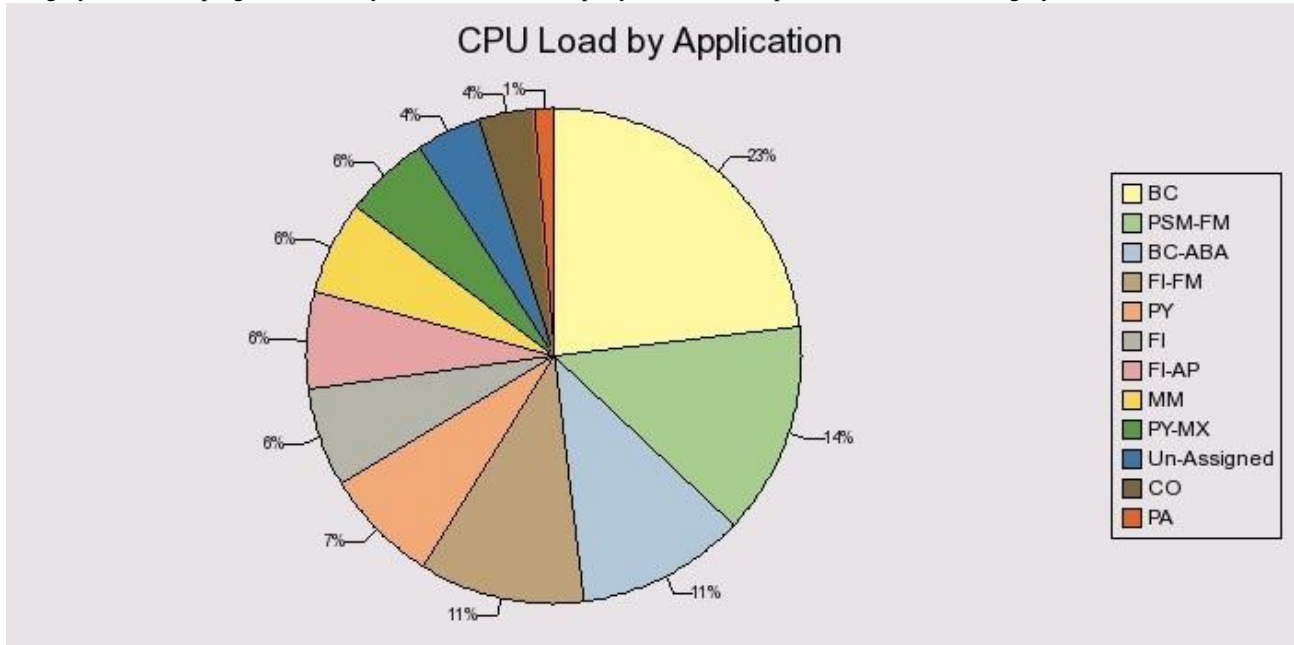
The performance of your system was analyzed with respect to the workload distribution. We did not detect any major problems that could affect the performance of your SAP system.

6.2.1 Workload 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 landscape
- Database time: total database load generated by the application

All programs that are not classified in the SAP Application Hierarchy (transaction SE81) are summarized in the "Un-Assigned" category. Customer programs, industry solutions, and third-party add-on developments fall into this category.



6.2.2 DB Load Profile

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

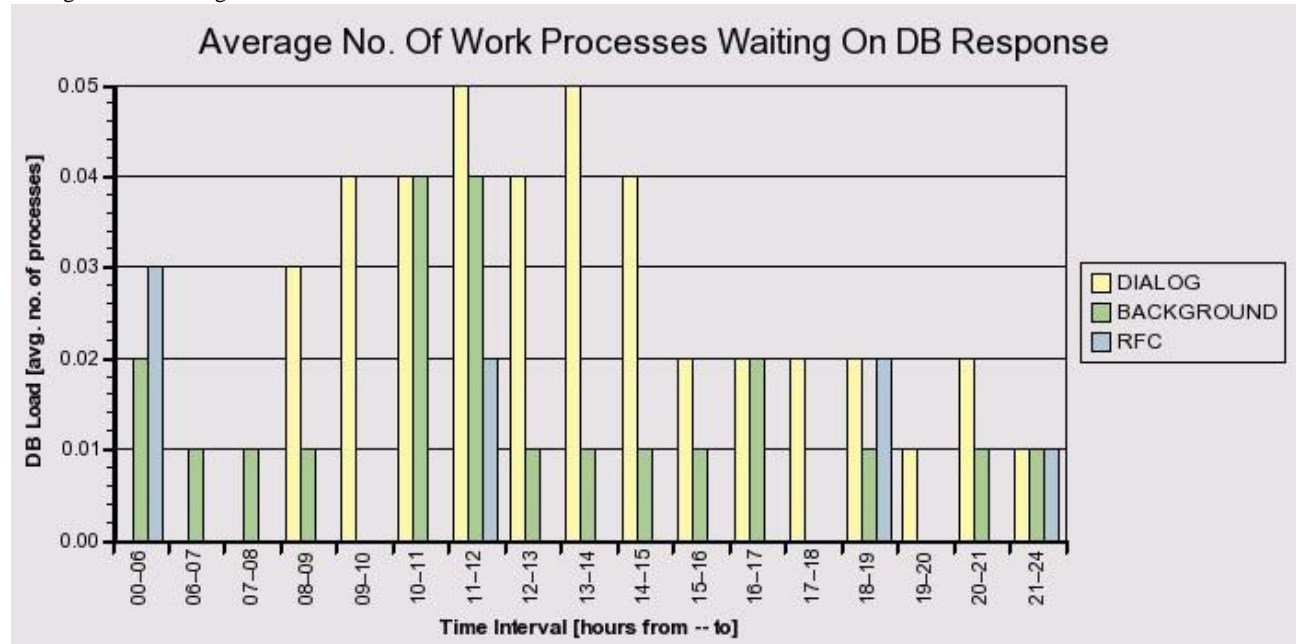
The following diagram shows the DB load caused by dialog, RFC, HTTP(S), and background tasks, over different time frames.

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 17750. 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 PRD

Rating	Check
✔	Performance Evaluation

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	142199	583,9	162,6	0,3	4,0	79,2	351,3
RFC	18423	1.051,9	363,7	1,2	2,8	382,8	0,0
UPDATE	54067	24,0	14,4	0,1	1,2	10,1	0,0
UPDATE2	51611	12,8	10,1	0,1	0,6	2,4	0,0
BATCH	57582	568,3	359,2	27,9	9,3	166,6	0,0
SPOOL	31146	625,1	1,9	153,2	0,2	1,2	0,0
HTTP	371	2.506,3	1.717,8	0,2	38,8	1.110,0	0,0

More than 200 ms of the dialog response time is caused by GUI time. High GUI time can be caused by poor network performance.

Perform a LAN Ping check via ST06 with a package size of 4096 bytes. The reference response times are:

- In a local area network (LAN): < 20 milliseconds
- In a Wide Area Network (WAN): < 50 milliseconds
- With a modern connection (for example, 56 KB): < 250 milliseconds
- There should be no loss of data package.

For further analysis, use NIPING as per SAP Note 500235 - Network Diagnosis with NIPING. If necessary, contact your network partner to improve the network throughput.

Other optimization options:

Low-Speed Connection

In WAN (wide area network) environments, switch the network communication between the GUI and the application level to Low Speed Connection.

This will reduce the volume of data transferred per dialog step (see SAP Note 164102). You can activate the low-speed connection in the SAP logon window by selecting the entry for an SAP system and selecting the “Low Speed Connection” option in the Properties Advanced menu option.

SAP Easy Access Menu

- 1) Restrict the number of transactions in a user role (ideally 1,000 or fewer).
- 2) Avoid widely used background images in SAP Easy Access menu (which should be no larger than 20 KB).

Refer to SAP Note 203924 for details.

7.1 Performance Evaluation

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

- If the number of dialog steps in an hour is less than 1000, this hour is not considered.
- If the total number of transaction steps is less than 24000, the rating for the task is not performed (indicated by a gray icon in the table).

The table below shows that no problem is expected on the application or database servers.

Task	Steps	Application Server Performance		Database Server Performance		
Dia	142142	✔		✔		
Task	Steps	Application Server Performance		Database Server Performance		
Upd	54067	✔		✔		
HTTP	371	◇		◇		
HTTPS	0	◇		◇		
Rating	Task Type	Time	Dialog Steps	Response Time	CPU Time	DB Time
!	Dia	08-09	3.785,0	1.413,0	159,0	172,0

The ratings in the table above are determined by comparisons against the reference table below.

If the dialog response times are very poor, it will cause a RED rating for the entire check.

Task	Reference for Avg. Response Time (ms) Yellow Rating	Reference for Avg. Response Time (ms) Red Rating	Reference for Avg. DB time (ms) Yellow Rating	Reference for Avg. DB time (ms) Red Rating

Dia	1200	3600	600	1800
Upd	2400	3600	1200	1800
HTTP	1200	3600	600	1800
HTTPS	1200	3600	600	1800

7.2 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.

7.2.1 Transactions by Total Workload

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

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
ZINF	DIA	2033	8,8	5.690,7	158,1	104,8	5.435,3
FMEQ	DIA	3309	6,8	2.727,8	1.638,8	396,3	710,8
SESSION_MANAGER	DIA	7310	3,9	706,4	56,4	19,1	628,6
SE16N	DIA	443	2,5	7.571,6	4.534,5	64,6	2.991,4
ME23N	DIA	8781	2,5	370,4	83,8	15,3	272,6
ZHCMPAMEDIDAS	DIA	805	2,4	3.878,4	622,3	538,7	2.823,6
ZRH_SAB_ESTRUC_ORG	DIA	65	2,3	46.435,2	12.444,0	12.276,8	24.576,6
FS10N	DIA	8767	2,2	327,0	103,8	114,2	114,9
PA20	DIA	4782	1,9	537,8	63,8	17,1	457,7
ZRHPA_FONACPA01	DIA	180	1,8	13.027,0	10.256,7	2.732,3	603,4

15.3% 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 in s	Total CPU Time in s	Total DB Time in s
RSBDCBTC_SUB	9	6,6	8.730,0	6.127,0	1.491,2

Workload by Transaction (Batch)

Transaction	Dialog Steps	Total Resp. Time in %	Total Resp. Time in s	Total CPU Time in s	Total DB Time in s
HMXCALC0	15	2,6	3.443,0	2.731,0	775,9
SAPF110S	84	2,2	2.959,0	2.919,0	2.028,1
BPDIST05	7	1,5	1.926,0	1.893,0	239,2
BPDIST02	7	1,3	1.758,0	1.770,0	246,8

/BDL/TASK_SCHEDULER	168	1,3	1.679,0	4,0	4,9
BPINDEX03	7	0,9	1.172,0	848,0	71,7
BPDIST01	7	0,8	1.093,0	2.055,0	152,3
(BATCH)	39369	0,6	837,0	299,0	216,4
ZHCM_PY_FI_PRAD1	21	0,4	493,0	179,0	386,8

0.4% of the total response time in the above table is caused by customer transactions.

7.2.2 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
FMEQ	DIA	3309	6,7	396,3
FS10N	DIA	8767	5,1	114,2
FBL1N	DIA	7461	4,6	121,6
ZRH_SAB_ESTRUC_ORG	DIA	65	4,1	12.276,8
ME2L	DIA	2672	3,7	269,6
ZRHPA_FONACPA01	DIA	180	2,5	2.732,3
ZFM_CXLC	DIA	1525	2,3	292,8
ZHCM_PAMEDIDAS	DIA	805	2,2	538,7
ZAAREG	DIA	73	1,4	3.751,9
ZFM_FMEQ	DIA	4106	1,3	62,3

13.8% 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 in s
SAPF110S	84	10,3	2.028,0
RSBDCBTC_SUB	9	7,6	1.491,0
HMXCALC0	15	3,9	776,0
ZHCM_PY_FI_PRAD1	21	2,0	387,0
SAPRSLOG	7	1,8	351,0
ZSDACTUALIZACONS	7	1,7	337,0
BPDIST02	7	1,3	247,0
BPDIST05	7	1,2	239,0
(BATCH)	39369	1,1	216,0

ZFM_MOMENTOS_CONGELADOD	7	1,0	204,0
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4.7% of the total database time in the above table is caused by customer transactions.

If average database times are outside acceptable boundaries and you are unhappy with the performance of a transaction, contact your in-house developers about possible optimization potential and open a message under component SV-BO if required.

7.3 RFC Load by Initiating Action

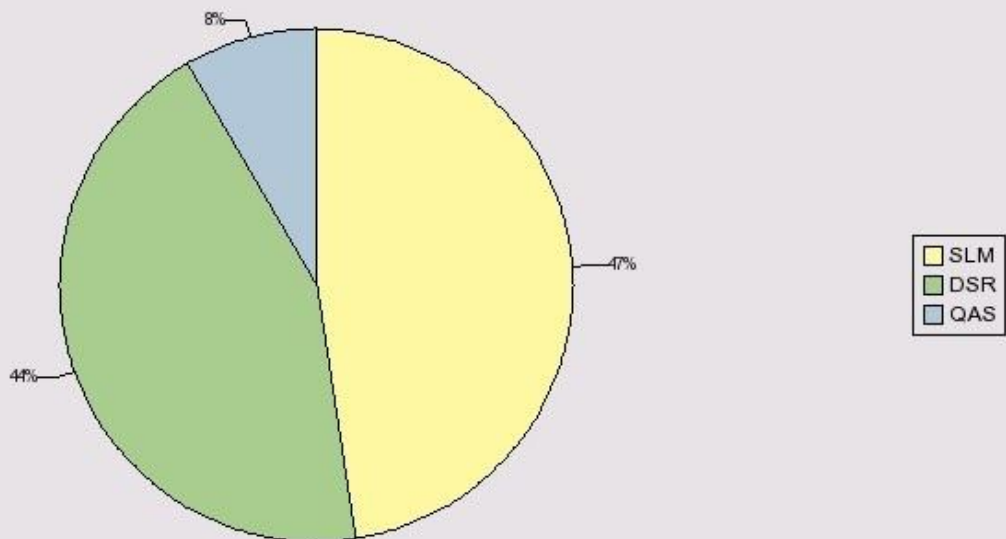
The load in task type RFC is shown. In the workload monitor, this information is shown as 'Load from External Systems'. The calling system can be an application server of the system itself or any external system using the RFC interface. The 'Initial Action' is the calling program initiating the RFC.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

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

Load Overview

Initial System	Load [s]	Load %
Local system PRD	134.537	99,90
Sum of external systems	43	0,03
n/a (not available)	96	0,07
RFC load (sum of above)	134.677	100,00
RFC load in Performance Overview	19.379	14,39
Load of all task types in Performance Overview	175.244	130,12

Load Distribution From External Systems



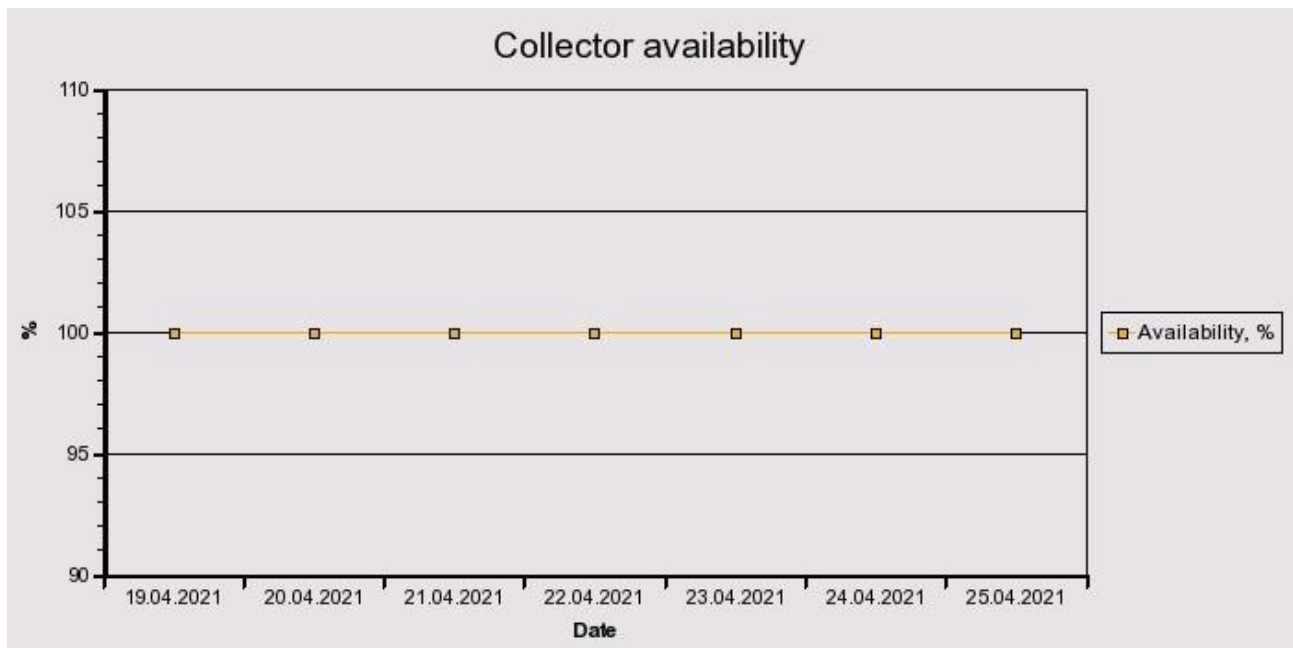
Top 20 RFC Calls From Local System - Average Times [ms]

Initial System	Initial Action	Total Resp. Time in s	% of RFC Load	Avg. Response Time	Avg. CPU Time	Avg. DB Time	Avg. Roll Wait Time
PRD	ZPMR_INFORMAT	11.537	8,57	5.871,4	157,2	97,7	0,2

PRD	FMEQ	9.481	7,04	2.119,2	1.227,0	296,3	0,4
PRD	XK01	8.770	6,51	27.321,4	19.108,2	4.654,9	0,4
PRD	ME23N	6.147	4,56	713,6	78,3	15,4	7,3
PRD	FM_REESTRUCTURA	5.949	4,42	169.967,5	187.597,2	20.291,8	43.464,0
PRD	COLLECTOR_FOR_PERFORMANCEMONITOR	5.235	3,89	996,5	364,9	273,9	1,9
PRD	SESSION_MANAGER	4.458	3,31	769,7	57,8	21,5	0,5
PRD	SAP_COLLECTOR_FOR_PERFMONITOR	3.387	2,52	716,4	112,8	240,3	1,1
PRD	SE16N	3.354	2,49	7.571,6	4.534,5	64,6	0,3
PRD	ZFM_CXLC	3.054	2,27	1.762,2	238,2	260,2	13,6
PRD	FB03	2.975	2,21	318,0	27,7	11,6	6,3
PRD	ZRH_SAB_ESTRUC_ORG	2.804	2,08	46.726,6	11.419,3	11.298,2	0,0
PRD	HMXCALC0	2.763	2,05	1.697,4	134,1	67,1	107,0
PRD	PA20	2.572	1,91	537,8	63,8	17,1	0,4
PRD	ZHCMPAMEDIDAS	2.521	1,87	4.695,1	669,5	589,9	0,3
PRD	ZFM_ADECUACIONES	2.286	1,70	716,7	63,2	42,0	6,3
PRD	FBCJ	2.012	1,49	570,1	36,1	23,6	13,2
PRD	/BDL/TASK_PROCESSOR	1.683	1,25	5.009,0	28,1	19,1	3,7
PRD	ME2L	1.656	1,23	561,4	313,1	247,4	0,1
PRD	ME21N	1.644	1,22	443,3	67,6	16,4	0,3

8 SAP System Operating PRD

8.1 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."

8.2 Update Errors

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

We did not detect any problems.

8.3 Table Reorganization

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

8.4 Program Errors (ABAP Dumps)

2 ABAP dumps have been recorded in your system in the period 23.04.2021 to 23.04.2021. 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				
23.04.2021	2				
Name of Runtime Error	Dumps	Server (e.g.)	User (e.g.)	Date (e.g.)	Time (e.g.)
MEM_ALLOC_FAILED	1	SERVER_PRD_00	% GDPR%	23.04.2021	17:50:23
TSV_TNEW_PAGE_ALLOC_FAILED	1	SERVER_PRD_00	% GDPR%	23.04.2021	17:50:28

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

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

9 Software Change and Transport Management of PRD

9.1 SAP Netweaver Application Server ABAP of PRD

Rating	Check Performed
	Number of Changes
	Emergency Changes
	Failed Changes

9.1.1 Number of Changes

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

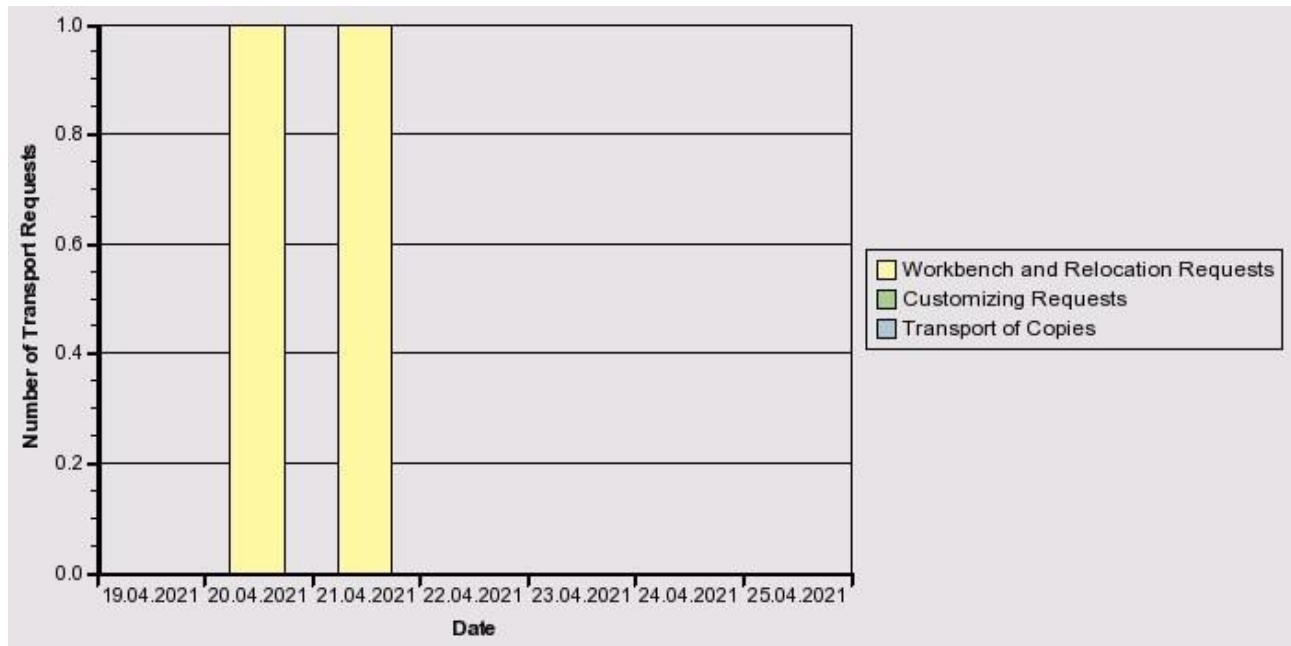
No data from the managed system could be found in the configuration and change database (CCDB). Check whether the diagnostics setup for the managed system has been performed as described in SAP Note [1265070](#).

Solution Manager Diagnostics provides valuable features for root cause analysis and is an important data source for various support services.

The CCDB data is required here to check the configuration of the managed system.

9.1.2 Number of Transport Requests

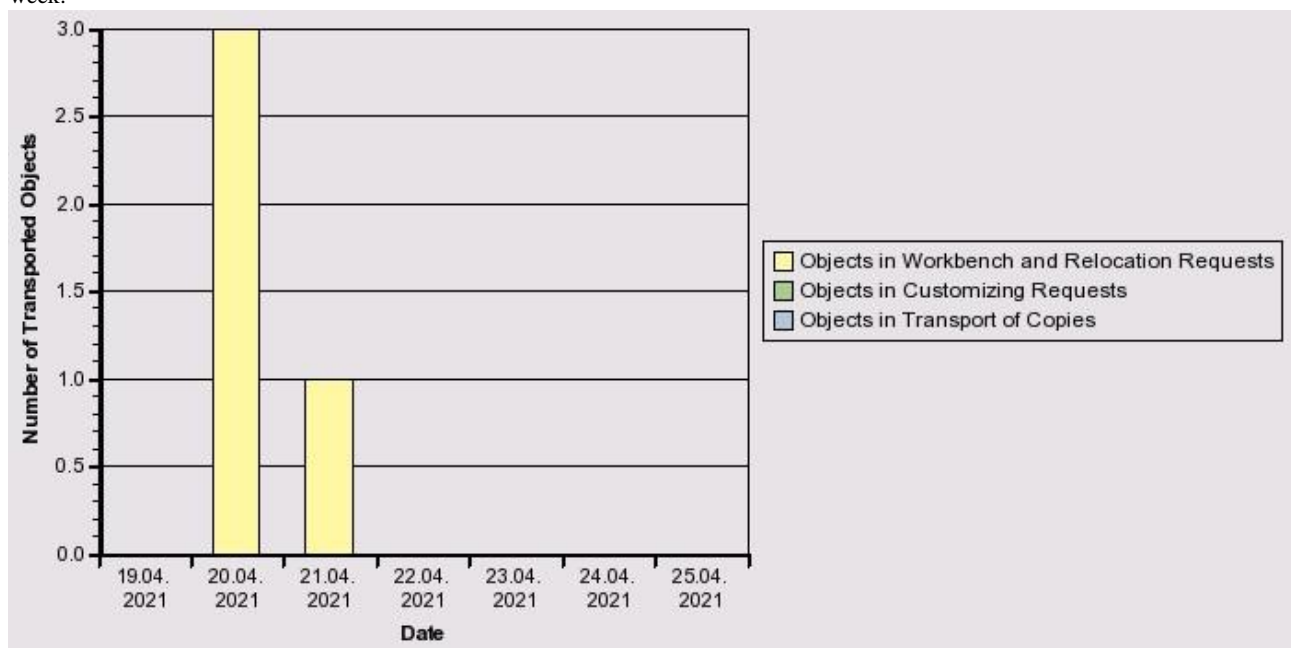
The following diagram contains information about the number of transport requests per day that were imported into the SAP system in the last week.



Date	Workbench and Relocation Requests	Customizing Requests	Transport of Copies
20.04.2021	1	0	0
21.04.2021	1	0	0

9.1.3 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
20.04.2021	3	0	0
Date	Objects in Workbench and Relocation Requests	Objects in Customizing Requests	Objects in Transport of Copies
21.04.2021	1	0	0

9.1.4 Emergency Changes

We analyzed the number of emergency changes in system PRD 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	1	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	2	Total number of transport requests in production.

9.1.5 Failed Changes

In this check, we analyzed the number of failed changes in system PRD 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 a

9.2 SAP Netweaver Application Server JAVA of PRD

Rating	Check Performed
!	Number of Changes
!	Enhanced Change and Transport System (CTS+)

9.2.1 Number of Changes

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

No data from the managed system could be found in the configuration and change database (CCDB). Check whether the diagnostics setup for the managed system has been performed as described in SAP Note [1265070](#).

Solution Manager Diagnostics provides valuable features for root cause analysis and is an important data source for various support services.

The CCDB data is required here to check the configuration of the managed system.

9.2.2 Enhanced Change and Transport System (CTS+)

The enhanced Change and Transport System (CTS+) enables you to transport Java objects and SAP-related non-ABAP applications in your system landscape along with ABAP objects. The tracking and logging features of the ABAP Change and Transport System are also available for non-ABAP applications in a central user interface. This provides maximum transparency for all changes in the complete landscape, including ABAP and non-ABAP systems. CTS+ is SAP's recommended tool for distributing changes across the transport landscape.

We could not determine whether CTS+ is used. Either it is not used or information about its usage is not available in SAP Solution Manager.

If CTS+ is not configured, you should set it up as described in the online help <http://help.sap.com/nwcts> --> Application Help.

If CTS+ is configured but this information is not available in SAP Solution Manager, repeat the managed system configuration for this system in transaction SOLMAN_SETUP of your SAP Solution Manager. In step "Enter System Parameters", section "CTS+ Reporting", select CTS+ as active and enter the communication system. Also run the managed system configuration for the CTS+ communication system.

10 Data Volume Management (DVM)

This report does not have a Data Volume Management (DVM) section because your SAP Solution Manager system does not fulfill the technical requirements. For more information, see SAP Note [2036442](#).

As a workaround, the database size and growth per year for your system PRD were checked. Here, we found a database size of 368.24 GB and a database growth of 2.23% per year. These figures indicate that, from a Data Volume Management perspective, no immediate activities are required for your system PRD.

11 Database Performance for PRD

11.1 I/O Performance

The following tables show how I/O operations are distributed across the data files and log files respectively.

The average wait time per I/O operation is also shown below for each file (IOStallRead and IOStallWrite).

Generally, high I/O read times cannot be used as a direct indication of DB performance issues. We recommend, therefore, that you refer to [SAP Note 987961](#) for information about interpreting the various I/O statistics available with SQL Server 2005 and 2008.

With respect to the data files, the I/O activity must be evenly distributed among the files. This can be achieved by manually maintaining an even amount of free space in data files.

Transaction log files are used sequentially, which is why having more than one file does not improve performance. If you have multiple log files for other reasons, uneven distribution can be ignored.

Additionally, the "IO related wait events" table summarizes and assesses all wait events relevant to disk I/O performance.

Note: The average wait time for each I/O operation (IOStallRead) of the files with YELLOW rating deviates by more than 50% from the best one. If this is not expected behavior of your storage subsystem, contact the storage administrator or vendor. There may be potential to improve performance for the corresponding logical volumes.

Data Files

File	Reads	% of Reads	Writes	% of Writes	IOStallWrite [ms] / write request	IOStallRead [ms] / read request
XXXXXX1	240612718	35.44	2314436	39.62	1.62	6.63
XXXXXX2	214923652	31.66	1802312	30.85	1.61	10.83
XXXXXX3	223401110	32.90	1725515	29.54	1.60	13.87
Total	678937480	100	5842263	100	1.61	10.34

Log Files

File	Reads	Writes	IOStallWrite [ms] / write request	IOStallRead [ms] / read request
YYYYY1	1080049	7732514	0.49	0.45

IO related wait events

Wait type	Wait time (ms)	Requests	Wait time / Requests	Reference Value	Rating
Analysis timeframe (ms):	8.417.356.300				
ASYNCH_IO_COMPLETION	384.998.370	1.144	336.537,04		
PAGEIOLATCH_SH	218.130.020	45.270.740	4,82	15,00	✓
PAGEIOLATCH_EX	7.167.906	1.407.122	5,09		
WRITELOG	3.321.093	7.258.450	0,46	6,00	✓
IO_COMPLETION	3.210.515	729.995	4,40		
PAGEIOLATCH_UP	46.375	23.002	2,02		

11.2 Database Buffers and Performance

The following information is based on historical data extracted from the database collector for the week prior to this service session.

Performance Indicator	Description	Observed value	Reference value
DATA CACHE HIT RATIO	Indicates how often the database accesses data in memory	92 %	>= 97 %
PROCEDURE CACHE HIT RATIO	Indicates how often stored procedures were found in memory	98 %	> 80 %

11.3 Wait Statistics




The wait statistics of the SQL Server show long wait times for the event(s) highlighted below. This can indicate slow performance of the I/O system or other unusual conditions. Note that wait events that are known to have no relevance to user queries ("idle events") are not shown in the table.

High wait time for some events may indicate a performance bottleneck. In the "Rating" column, you may find the following symbols:

"Red flash" - in a well-tuned database, the event should not appear among the top events. Its appearance indicates a bottleneck and thus potential for improvement. See explanations below.

"Yellow exclamation mark" - it is normal that the wait event is among the top events, but its average value exceeds a threshold. An improvement may be possible.

"Blue information sign" - this wait event is important for performance but does not have a critical value. No symbol - we do not have experience with a wait event of that type. If the overall database performance is not affected; it can be ignored.

Wait type	Wait time (ms)	Requests	Wait time / Requests	Rating
Analysis timeframe (ms):	8.417.356.300			
BACKUPBUFFER	548.083.330	1.632.724.900	0,34	
ASYNC_IO_COMPLETION	384.998.370	1.144	336.537,04	
PAGEIOLATCH_SH	218.130.020	45.270.740	4,82	
ASYNC_NETWORK_IO	179.719.070	551.931.520	0,33	
BACKUIO	170.670.860	469.776.290	0,36	

11.4 Missing Indexes

This check verifies that the indexes defined by SAP application developers in the SAP data dictionary also exist in the database. Missing primary indexes can lead to inconsistent data in the SAP system. A missing index of any kind can lead to severe performance problems.

No missing indexes were found in system PRD.

12 Database Administration for PRD

12.1 Database Files

The following checks analyze the settings for database and transaction log files.

12.1.1 Data Separation

To distribute I/O load, place heavily used files such as database files, transaction log files, files of database tempdb, and the Windows paging files on separate disks.

Note: From the SAP side, we are not in a position to check whether your partitions are distributed across multiple physical devices.

Make sure the following brief guidelines for security, maximum performance, and scalability are taken into account.

1. The temporary database for SQL Server (tempdb) is used by queries to execute large join, sort, and group operations when the SQL Server buffer pool cannot provide enough memory.

For SAP BW, SAP SEM, and SAP SCM, tempdb I/O performance can become a major bottleneck when reporting queries are executed that use the fact table or perform aggregation. To prevent bottlenecks, we recommend that you manage tempdb as a normal SAP database. Use a data tempdb file on the same partition with each data SAP database file. Furthermore, do not place tempdb on the partition and disks that contain the transaction log. For Storage Area Network (SAN) storage, tempdb can share space with the tempdb log files.

2. For security and performance reasons, store the SAP data files and the SAP transaction log file(s) on separate disk systems. They should not share disks with other SQL Server programs and database files.
3. Store the Windows paging file(s) on dedicated disks.






12.1.2 Database Free Space

With SQL Server, the database files can be expanded dynamically on the disks where they are located. If files run full and no freespace is left on disk, an error occurs and you risk system downtime. Therefore, we recommend that you pay close attention to the potential growth of the database.

If you have database files located on several disks and you have to enlarge files, you should spread database free space evenly across all disks. SQL Server can then spread I/O load on all available disks.

The free space within your database files is currently below 10% of the database space used. Ensure that you manually expand your database files before free space is exhausted.

Note: We recommend allowing the 'Automatic growth' mechanism to work in exceptional cases only. The automatic growth mechanism will expand the data files most likely at a time of heavy system usage. While the file is expanded, database access is strongly impaired. Therefore, you should only expand the files manually during periods of low system activity.

Space Usage	Size (MB)	Rating
Database size	400719	
used size	378221	
free	22498	
free in partition E	647043	
total free	669541	

12.1.3 Database File Settings

When distributing database files, adhere to the following general rules:

1. If you use directly attached disks, distribute the I/O load to multiple physical disks. This can be achieved by assigning each data file to an individual disk spindles.
2. For all data files in the R/3 system, enable "Autogrowth" option using SQL Server tools. Set the file growth to at least 100 MB.
3. Regularly monitor free space in the data files. Expand database files manually before automatic growth occurs. Otherwise, automatic growth may occur during working hours, forcing online users to wait. Automatic growth should only occur in exceptional cases.

4. Ensure that after a manual or automatic file expansion all data files have approximately equal amount of free space in them.

Note: Your current database file settings are:

Database File Name	Growth activated?	Growth not restricted?	Next 2 steps possible?	Next step size	Free Space on File	Data file full?	Rating
E:\XXXXX1\XXXXX1.mdf	✓	✓	✓	300.00 MB	7583 MB		✓
E:\XXXXX2\XXXXX2.mdf	✓	✓	✓	300.00 MB	7128 MB		✓
E:\XXXXX2\XXXXX2.mdf	✓	✓	✓	300.00 MB	7787 MB		✓

The data file settings in system PRD are correct.

12.1.4 Transaction Log File Settings

When transaction log files of an SQL Server database are full, log files can grow automatically, limited only by the space available on the Windows partition.

This is only true if the files are allowed to grow and sufficient space is available.

The current settings of your transaction log files are as follows:

Transaction Log File Name	Growth activated?	Growth not restricted?	Next step possible?	Next step size
f:\XXXXX1\XXXXX1.ldf	✓	✓	✓	100.00 MB

Recommendation: Use SQL Server tools to change the settings and ensure that enough free space is available. The standard settings for transaction log files are:

- Autogrowth = Enabled
- No growth limit set
- File growth = 10% or a step size of at least 150 MB

We found the following incorrect settings in system PRD:

The step size configured for file growth is smaller than the recommended size of 150 MB. When automatic growth takes place, the database system has to wait for completion of this action. If the step size is too small, wait situations may occur too often.

12.1.5 Tempdb Size and Settings

In an R/3 system, some actions (such as DBCC checkdb) and complex statements with JOIN and aggregate functions use a lot of space in database tempdb, depending on the size of the database and tables. In some cases, the database tempdb may grow up to several gigabytes while such actions are running. Therefore, it is important to monitor the actual size of tempdb and to provide enough disk space for it.

File Name	Growth activated?	Growth not restricted?	Next step possible?	Next step size	File size	Initial file size	Growth restricted to	Free on partition	Rating
tempdb.mdf	✓	✓	✓	10.00 %	300 MB	300 MB	no limit	647043 MB	✓
templog.ldf	✓	✓	✓	10.00 %	50 MB	50 MB	no limit	647043 MB	⚠
Space Usage						Size (MB)			

Database size	300
free in partition E	647043
DB size + free in partitions	647343
Transaction log size	50
free in partition E	647043
Log Size + Free in Partitions	647093

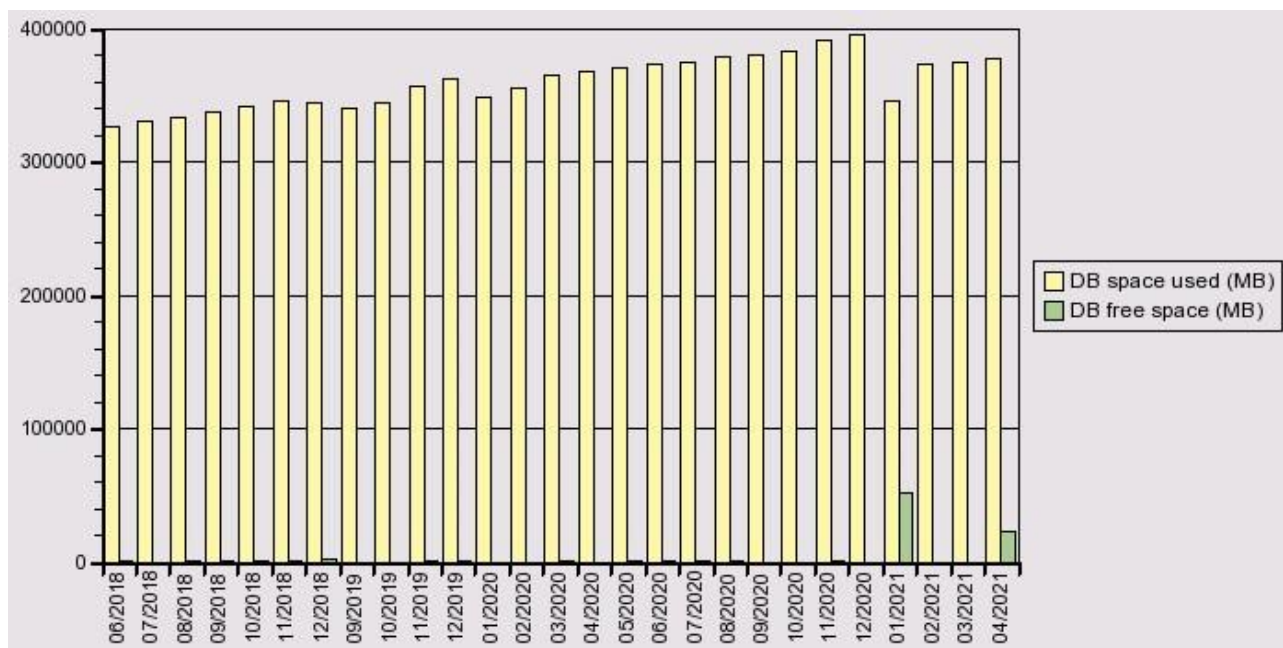
Recommendation: Set the size of database tempdb to at least 300 MB. Set the size of the transaction log of database tempdb to at least 60 MB.

12.2 Environment and Operating

In this section, basic information on the database and its software environment are shown.

12.2.1 Database Growth

The figures show a history of the total size and usage of the database files.



12.2.2 Largest Tables

The following table shows the largest tables currently in the database.

Table Name	Data (kB)	Reserved (data + indexes) kB	Used (data + indexes) kB	Rows	Modified Rows
PPOIX	20203184	32074888	32047184	89425685	7288479
FMIFIIT	10734464	30004944	29935384	17447058	1326600
REPOLOAD	18815144	18897832	18831176	416187	35026
SOFFCONT1	17716000	17724936	17718800	609134	32153
APQD	15892704	16105848	16072344	59585369	3746111
BSIS	10356600	12596424	12460176	17538080	3009600
ANLC	10295944	10415752	10412424	11559103	1272296
TST03	8834704	9082664	8945464	725152	31228
BKPF	5281704	8326560	8306240	6496860	893837
D010TAB	4107888	8285856	8282192	53839330	7579031

12.2.3 Service Pack

SAP always recommends the latest SQL Server Service Pack. For details on the SAP support strategy for SQL Server, see

[SAP Note 62988](#).

The recommendations for this check are as up to date as the SAP Service Tool.

Build In Use	Builds	Comment	Release Date
4035	9.00.4035	SQL SERVER 2005 Service Pack 3	15.12.2008
	9.00.4053	SQL SERVER 2005 Service Pack 3 Security Update	19.12.2009

	9.00.4207	SQL SERVER 2005 Service Pack 3 Cumulative Update 1	
	9.00.4211		
Build In Use	Builds	Comment	Release Date
		SQL SERVER 2005 Service Pack 3 Cumulative Update 2	
	9.00.4220	SQL SERVER 2005 Service Pack 3 Cumulative Update 3	
	9.00.4226	SQL SERVER 2005 Service Pack 3 Cumulative Update 4	
	9.00.4230	SQL SERVER 2005 Service Pack 3 Cumulative Update 5	
	9.00.4266	SQL SERVER 2005 Service Pack 3 Cumulative Update 6	
	9.00.4273	SQL SERVER 2005 Service Pack 3 Cumulative Update 7	
	9.00.4285	SQL SERVER 2005 Service Pack 3 Cumulative Update 8	
	9.00.4294	SQL SERVER 2005 Service Pack 3 Cumulative Update 9	
	9.00.4305	SQL SERVER 2005 Service Pack 3 Cumulative Update 10	
	9.00.4309	SQL SERVER 2005 Service Pack 3 Cumulative Update 11	
	9.00.4311	SQL SERVER 2005 Service Pack 3 Cumulative Update 12	
	9.00.4315	SQL SERVER 2005 Service Pack 3 Cumulative Update 13	
	9.00.4317	SQL SERVER 2005 Service Pack 3 Cumulative Update 14	
	9.00.4325	SQL SERVER 2005 Service Pack 3 Cumulative Update 15	
	9.00.5000	SQL SERVER 2005 Service Pack 4	16.12.2010
	9.00.5254	SQL SERVER 2005 Service Pack 4 Cumulative Update 1	23.12.2010
	9.00.5259	SQL SERVER 2005 Service Pack 4 Cumulative Update 2	21.02.2011
	9.00.5266	SQL SERVER 2005 Service Pack 4 Cumulative Update 3	22.03.2011
	9.00.5292	2494123 MS11-049: Description of the security update for SQL Server 2005 Service Pack 4	14.06.2011
	9.00.5294	2572407 FIX: Error 5180 when you use the ONLINE option to rebuild an index in SQL Server 2005	10.08.2011
	9.00.5296	2615425 FIX: "Msg 7359" error	24.10.2011

	9.00.5324	2716427 MS12-070: Description of the security update for SQL Server 2005 Service Pack 4 QFE	24.10.2011
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Recommendation: We recommend upgrading to at least build 9.00.5000.

The complete information about all SQL Server builds is linked in [Microsoft Knowledge Base Article 321185](#). SAP specific restrictions and recommendations are found in [SAP Note 62988](#).

Implementation: Install the same Service Pack for the SQL Server client utilities on all application servers.

12.2.4 Software Versions

DLLNAME	DLLVERSION	HOSTNAME	DLLPATH
ODBC32.DLL	3.526.3959.0 (srv03_sp2_rtm.0)	SERVER	C:\WINDOWS\system32\ODBC32.dll
ODBC32.DLL	3.526.4795.0 (srv03_sp2_gdr.1)	SERVER1	C:\WINDOWS\system32\ODBC32.dll
ODBC32.DLL	3.526.3959.0 (srv03_sp2_rtm.0)	SERVER2	C:\WINDOWS\system32\ODBC32.dll

In this section, some of most important database-related DLLs (the database interface library and some SQL Server client DLLs) are checked for homogeneous releases across system PRD.

The database-dependent part of the SAP interface is stored in dbmssslib.dll. A complete kernel patch consists of a database-independent part (DW.CAR) and the database library (LIB_DBSL.CAR).

When importing an SAP kernel patch, always download and import the current database library patch from SAP Service Marketplace for all application servers. SAP Note 19466 explains how to import SAP kernel patches.

If an SQL Server Service Pack is installed in an SAP system, this must be applied to the database server and to all application servers.

A Service Pack for SQL Server 2005 and SQL Server 2008 also contains updates for SNAC. The most important file for SNAC is sqlncli.dll. You can determine the version of the file in Windows Explorer by choosing File => Properties. For more information, see SAP Note 985137.

The table above indicates components with different releases across your system PRD.

Recommendation:

To prevent problems, ensure that software versions are the same on all application servers and/or delete older versions after an update.

Implementation:

Install the same software versions for the SQL Server client utilities on all application servers.

12.2.5 Database Maintenance Jobs

All database maintenance jobs are scheduled as recommended.

Job	SAP Note	Rating
Blocking Lockstats Job not Scheduled! (CCMS Blocking Locks statistics)	547911	◆

12.2.6 SAP Notes for SQL Server

The following SAP Notes contain useful information to operate the NetWeaver system on SQL Server.

SAP Note	Title
1067103	Transaction context lost
1085937	Wait Event Analysis For SQL Server
111291	FAQ: SQL server analysis and avoiding deadlocks
1152848	FAQ: SQL Server Wait Events
555223	FAQ: Microsoft SQL Server
62988	Service packs for Microsoft SQL Server
740418	Alternative GUID generation for Windows
806342	FAQ: Analyzing exclusive database locks on SQL Server
SAP Note	Title
879941	Configuration Parameters for SQL Server 2005
985137	Service Pack Installation for SQL Server 2005
987961	FAQ: SQL Server 2005 I/O performance
989595	FAQ: Cache Hit Ratio in SQL Server

13 Java System Data for PRD

Note that if performance data is available, if the system has more than 20 server nodes, only the data for the 10 server nodes with the highest values and 10 server nodes with the lowest values are listed.

13.1 Java VM Heap Size

The Java heap size data was not found. The configuration data can be found in the 'Root Cause Analysis' work center under 'System Analysis'--> 'Change Reporting'. If the data is already missing there, open a message under component SV-SMG-DIA. If data is available in 'Change Reporting', but is missing here, open a message under component SV-SMG-SER.

14 Database server load from expensive SQL statements - PRD

Database Load From Expensive Statements

Rating	Logical reads [%]	Physical reads [%]	Elapsed time [%]
--------	-------------------	--------------------	------------------

✔	58	4	53
---	----	---	----

The table above shows the cumulative amount of problematic statements identified. If the database was inactive for more than one day before the analysis was performed, the information provided may not be entirely accurate.

Note: The rating is GREEN since the dialog "Avg. DB Time" for the overall system is less than 400 ms. See the "Performance Overview" section.

Note: The overall section rating is linked to the above table rating; the ratings are described in [SAPNote 2021756](#).

If the table rating is RED, there are SQL statements that cause a high percentage of the overall load on your SAP system.

If the table rating is YELLOW, there are SQL statements that cause a considerable percentage of the overall load on your SAP system.

If the table rating is GREEN, your system SQL statement cache contains no significant problems.

If the table rating is UNRATED, the total reads of your system's SQL statement cache were <= 100,000,000, or some analysis data was unavailable.

The following table lists the load of each SQL statement individually. The load of the statement is evaluated against the total load since database startup.

Note: If an object name in this table contains the character "/", it may indicate a join. If an object is not in the ABAP Dictionary (transaction SE12) with the object name listed, check for each part of the join (items separated by "/").

15 Database and ABAP Load Optimization of PRD

15.1 Analysis of DB SQL CACHE on 26.04.2021 04:37:15

Expensive SQL Statements Overview

Object Name	Elapsed time [%]	Calls [%]	Calls	Total rows estimated	Logical reads [%]	Physical reads [%]	CPU time [%]
HRP1001	5	1	44472	88944	17	0	6

Expensive SQL Statements Overview

Object Name	Elapsed time [%]	Calls [%]	Calls	Total rows estimated	Logical reads [%]	Physical reads [%]	CPU time [%]
	22	0	33701	33701	11	0	28
HRP1001	3	1	44472	44472	8	0	4
HRP1001	3	1	44472	222360	6	0	4
HRP1002	1	7	511150	4089200	4	1	1
	1	0	2	2	3	3	1
	3	0	902	902	3	0	4
	11	0	902	902	2	0	14

	1	1	109882	109882	2	0	1
	3	0	212	212	2	0	4

The statements were selected for analysis and optimization based on the "Logical reads [%]" column. Logical reads are a measure of the workload on a database server because they cause CPU and memory utilization.

The "Total Rows expected" column indicates the expected number of rows returned by the statement.

16 Trend Analysis

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

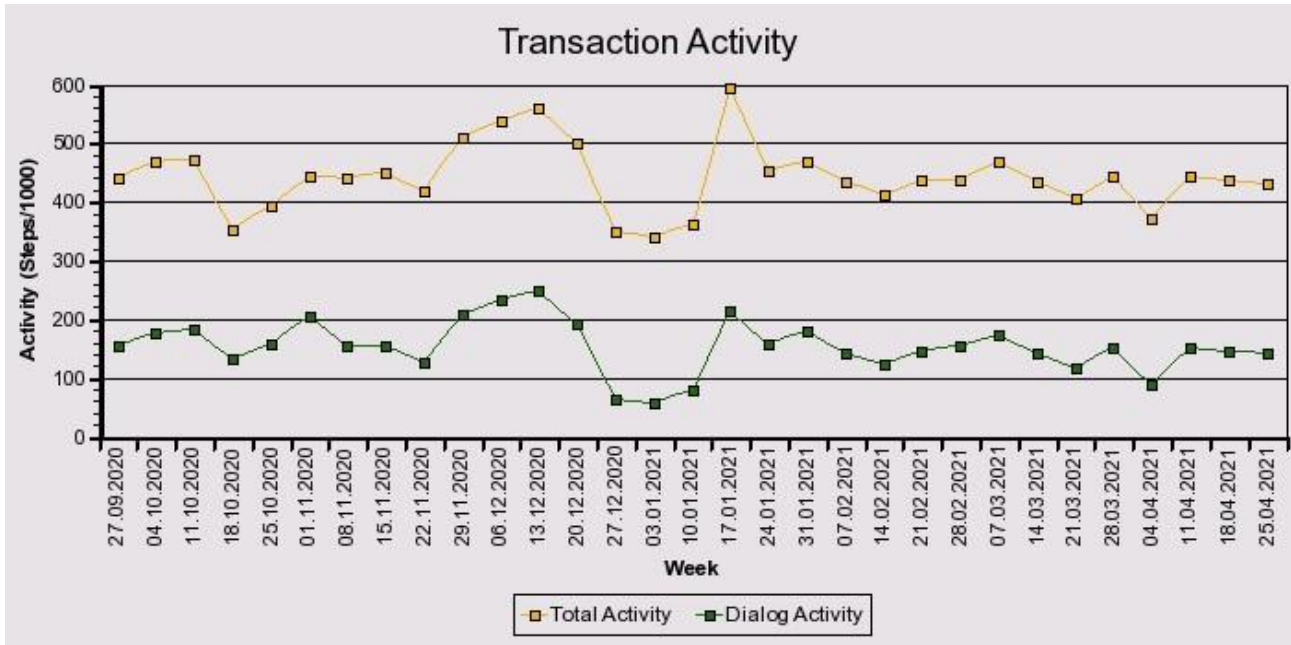
In this section, a "week" is from Monday to Sunday. The date displayed is the Sunday of the week.

16.1 System Activity

The following diagrams show the system activity over time.

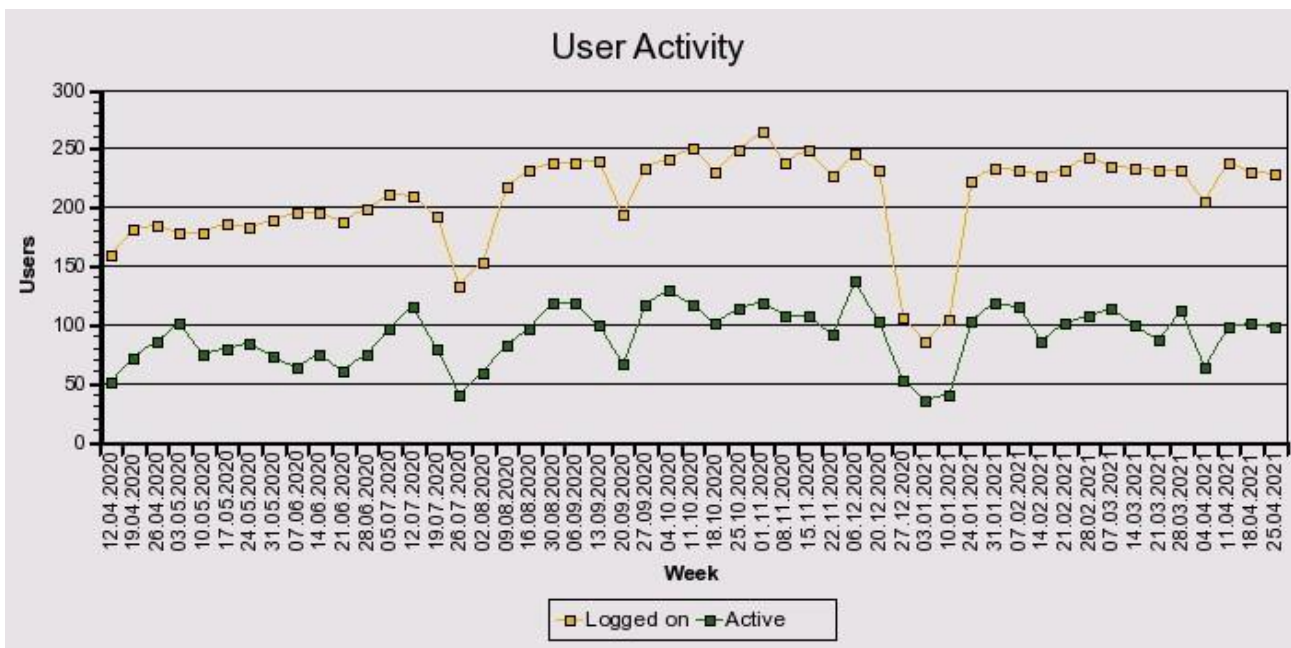
The "Transaction Activity" diagram below depicts transaction activity in the system over time.

- | - 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.

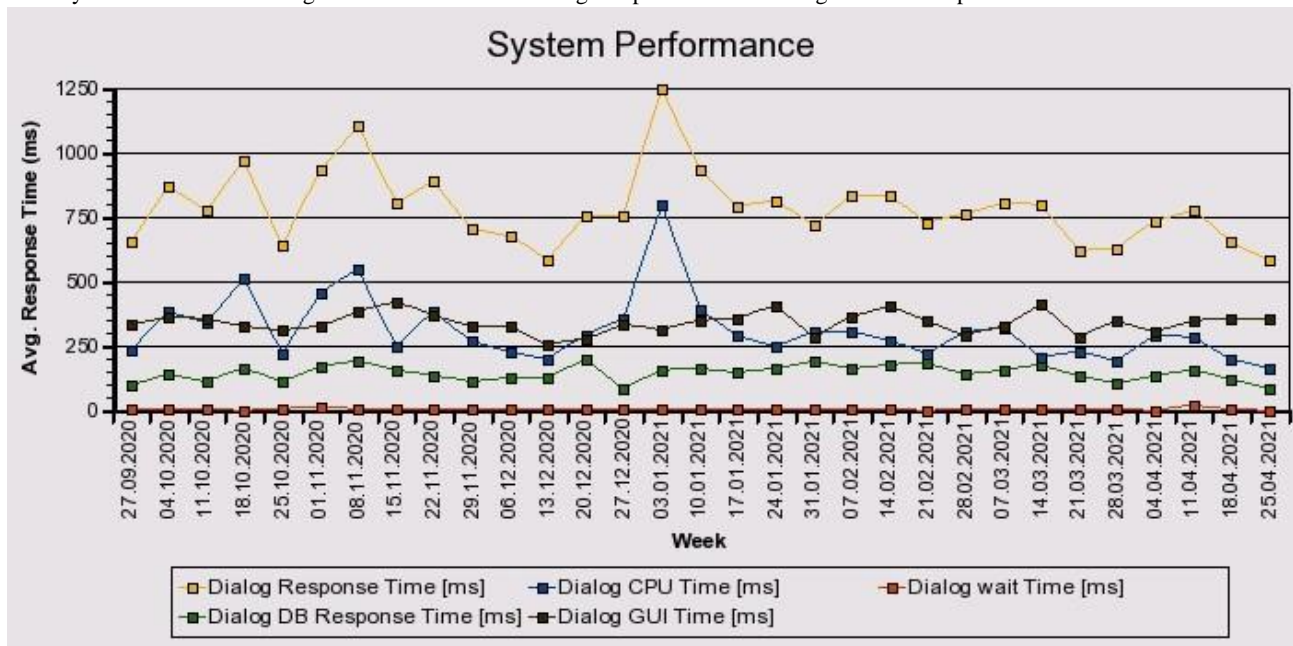
- | - Total Users Total users that logged on in one week.
- | - Active Users Users who performed more than 400 transaction steps in one week.



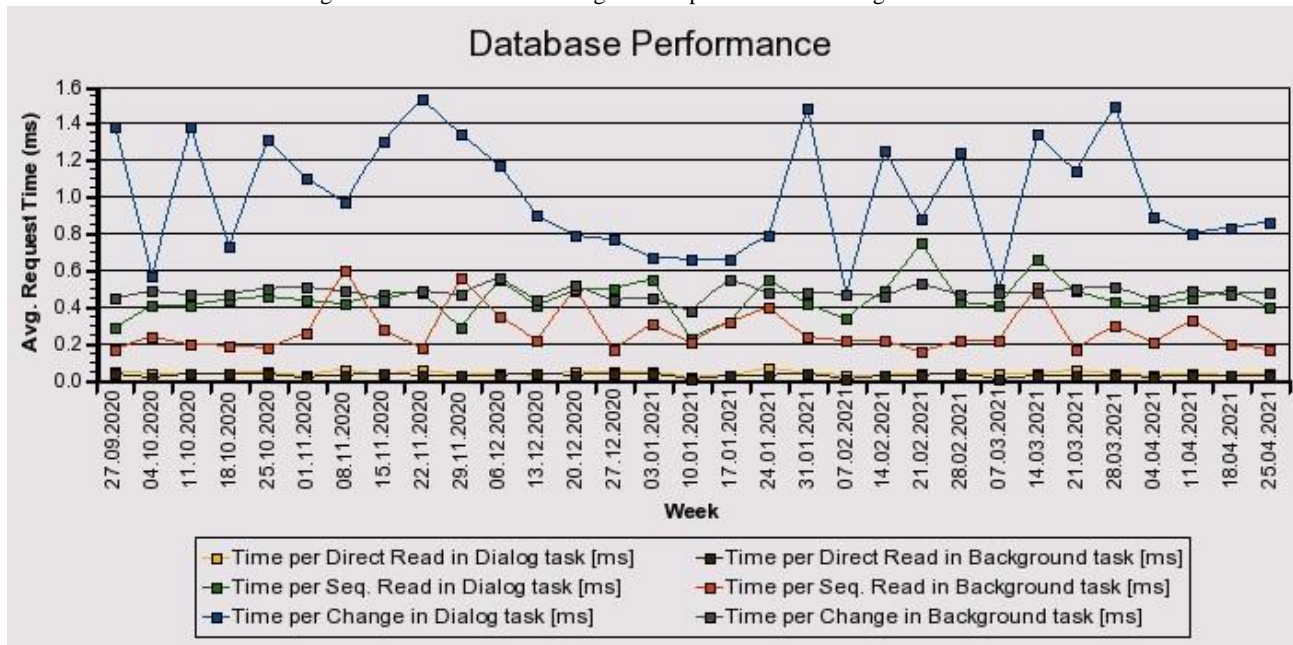
16.2 Response Times

The following diagrams show how the response time varies over time.

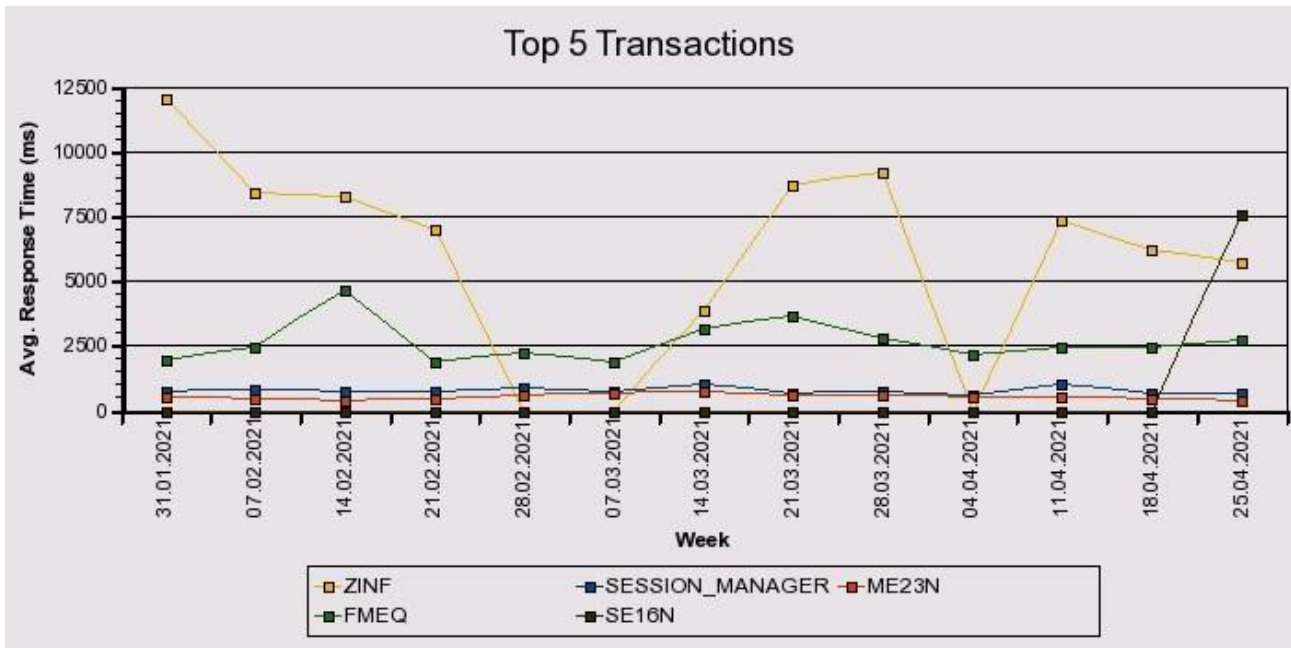
The "System Performance" diagram below shows the average response time in dialog tasks for the previous week.



The "Database Performance" diagram below shows the average DB response time in dialog tasks.

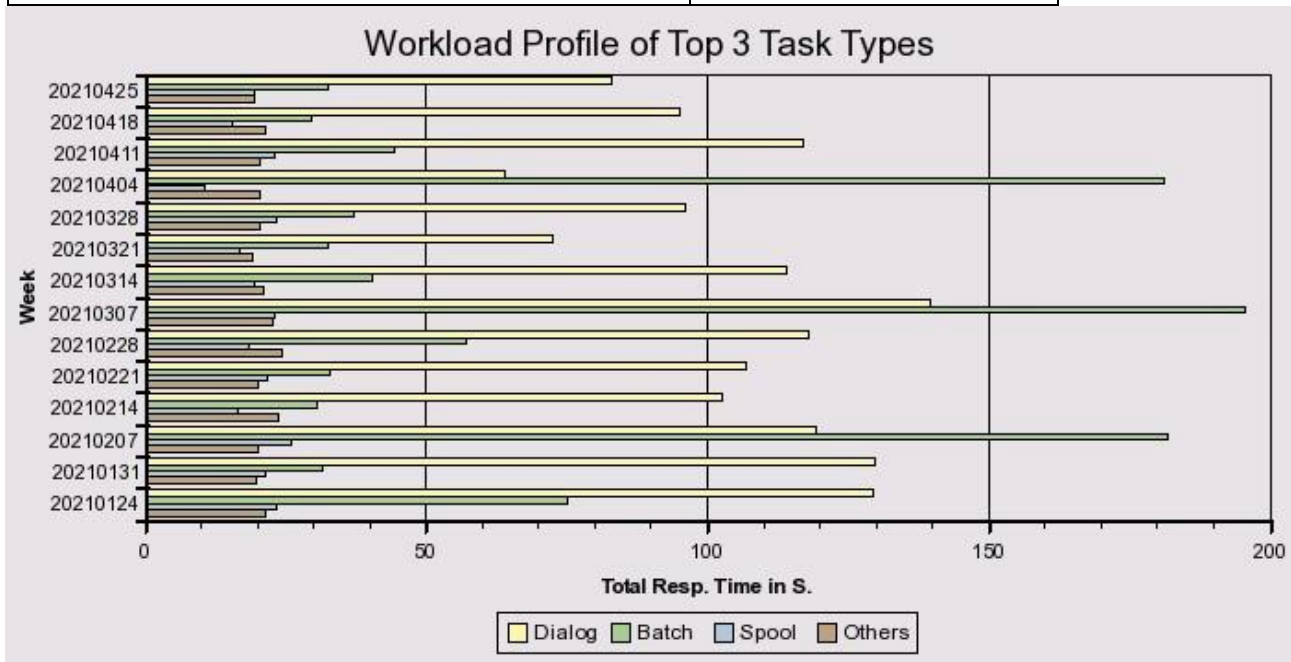


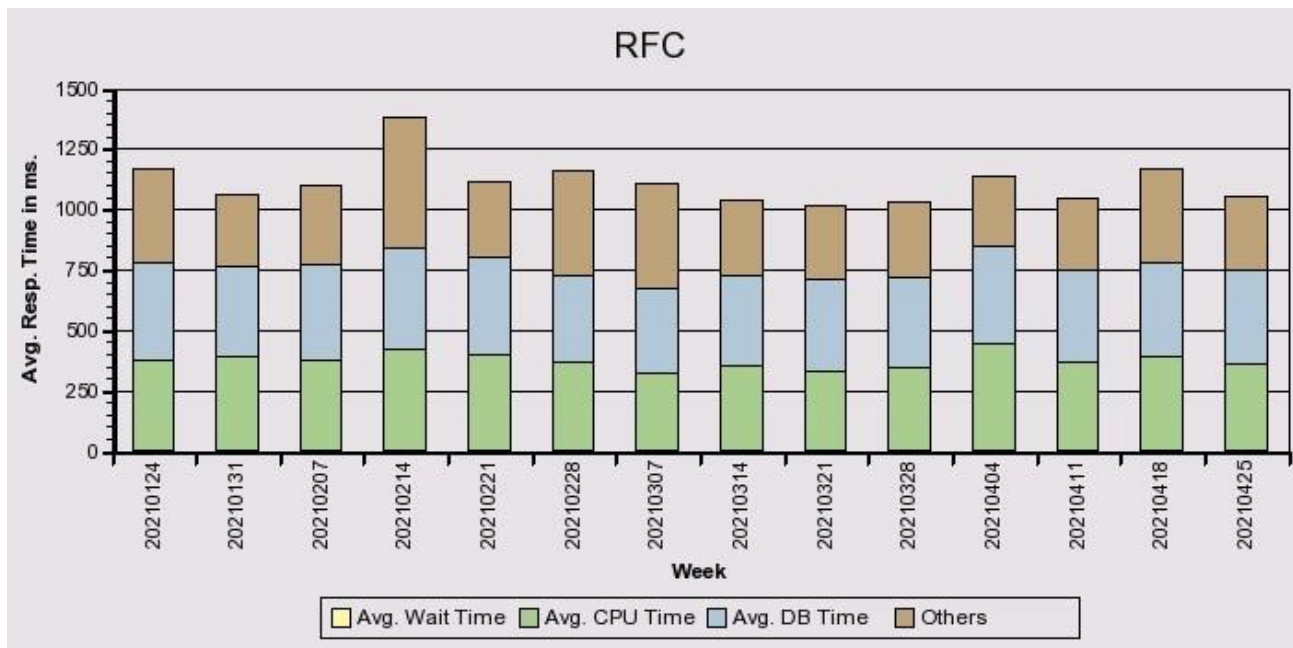
The "Top 5 transactions" diagram below shows the average response time in dialog tasks for the top 5 transactions.



The "Transaction Code" table below shows the load percentage caused by the top 5 transactions.

Transaction Code	Load (%)
ZINF	12,0
FMEQ	9,3
SESSION_MANAGER	5,3
SE16N	3,5
ME23N	3,4





16.3 Application profile

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

Short term: From calendar week 12/2021 to 15/2021

Long term: From calendar week 04/2021 to 15/2021

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

Top Applications by Response Time

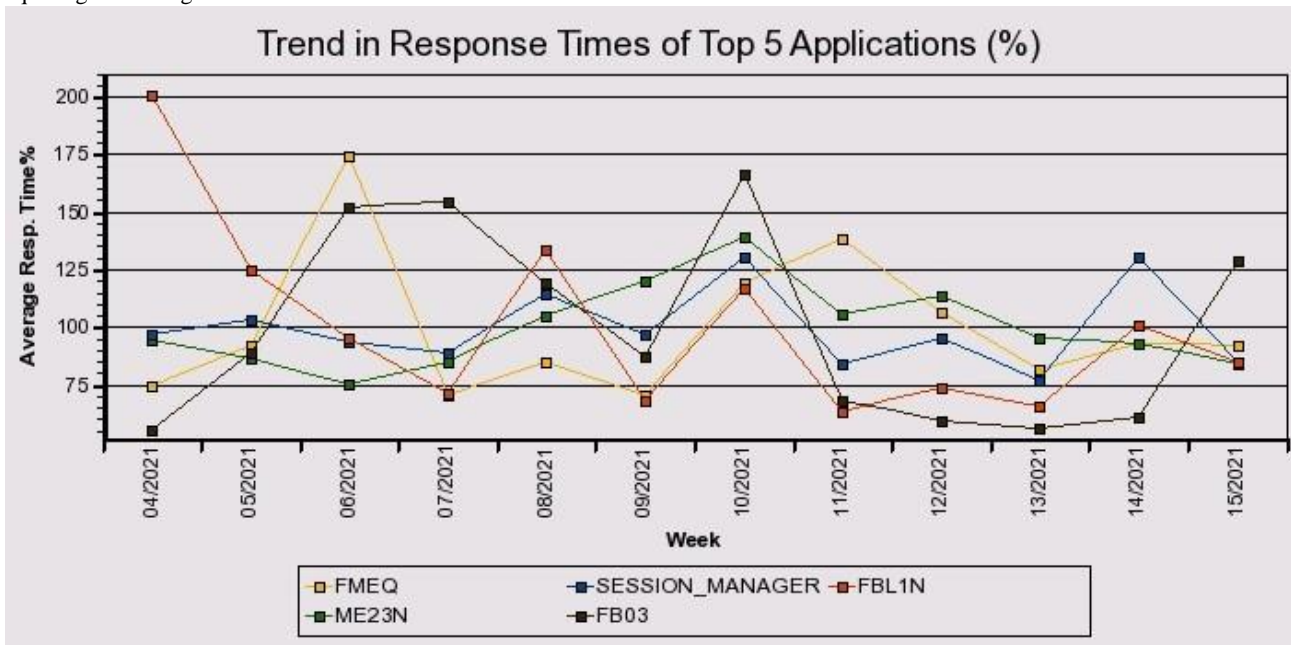
Task Type	Application	Total Resp. Time in s	% of Total Load	Avg. Resp. Time in ms	Long Term Growth (%/year)	Short Term Growth (%/year)	Avg. DB Time in ms	Avg. CPU Time in ms
Dialog	FMEQ	97810	8	2422	3,8-	123,5-	371	1501
Dialog	ME23N	76078	6	567	15,8	318,3-	19	92
Dialog	SESSION_MANAGER	73298	6	813	1,3-	83,5	22	94
Dialog	FB03	47751	4	375	42,7-	1.170,6	19	38
Dialog	FBL1N	44202	3	537	118,7-	313,6	202	175
Dialog	ZREP_ALTA_ACTIVOS	42673	3	6819	192,4	1.174,3	1578	2872
Dialog	FS10N	39910	3	318	35,3-	43,0-	91	101
Dialog	PC00_M99_CWTR	38291	3	4327	3,9-	631,6	637	2075
Dialog	S_ALR_87011964	34880	3	22474	104,9-	55,5-	4379	15641
Dialog	ZRH_SAB_ESTRUC_ORG	30529	2	18868	62,5	748,9-	7309	7788
Dialog	ZFM_CXLC	29072	2	1476	412,1-	144,4	845	974
Dialog	PHCPCEM	25287	2	263411	433,2	433,2	12187	251397
Dialog	ZHCMPAMEDIDAS	24152	2	2624	52,8-	157,0	483	540

Dialog	PA20	23411	2	471	3,9-	45,4	21	63
Dialog	ZFM_FMEQ	21730	2	430	1,7-	21,4	83	128
Dialog	ZINF	21567	2	6742	92,1-	153,3-	357	427
Dialog	ZAAR_R	19963	2	30854	351,0-	1.149,6-	28944	208

Top Applications by Response Time

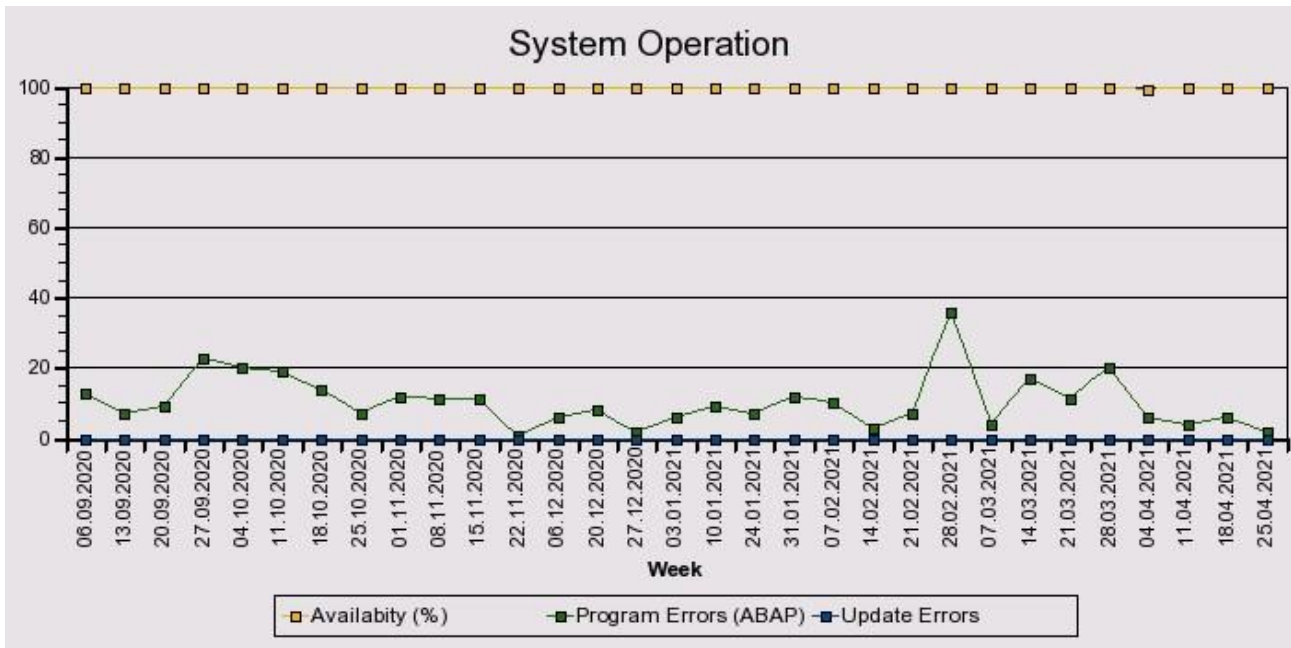
Task Type	Application	Total Resp. Time in s	% of Total Load	Avg. Resp. Time in ms	Long Term Growth (%/year)	Short Term Growth (%/year)	Avg. DB Time in ms	Avg. CPU Time in ms
Dialog	ZRHPA_FONACPA01	19299	2	14511	53,2	388,3-	2826	11597
Dialog	ME21N	17963	1	445	27,1	165,2-	18	80
Dialog	FMRP_RFFMEP4BX	17465	1	9497	63,8-	62,8	858	8041

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.



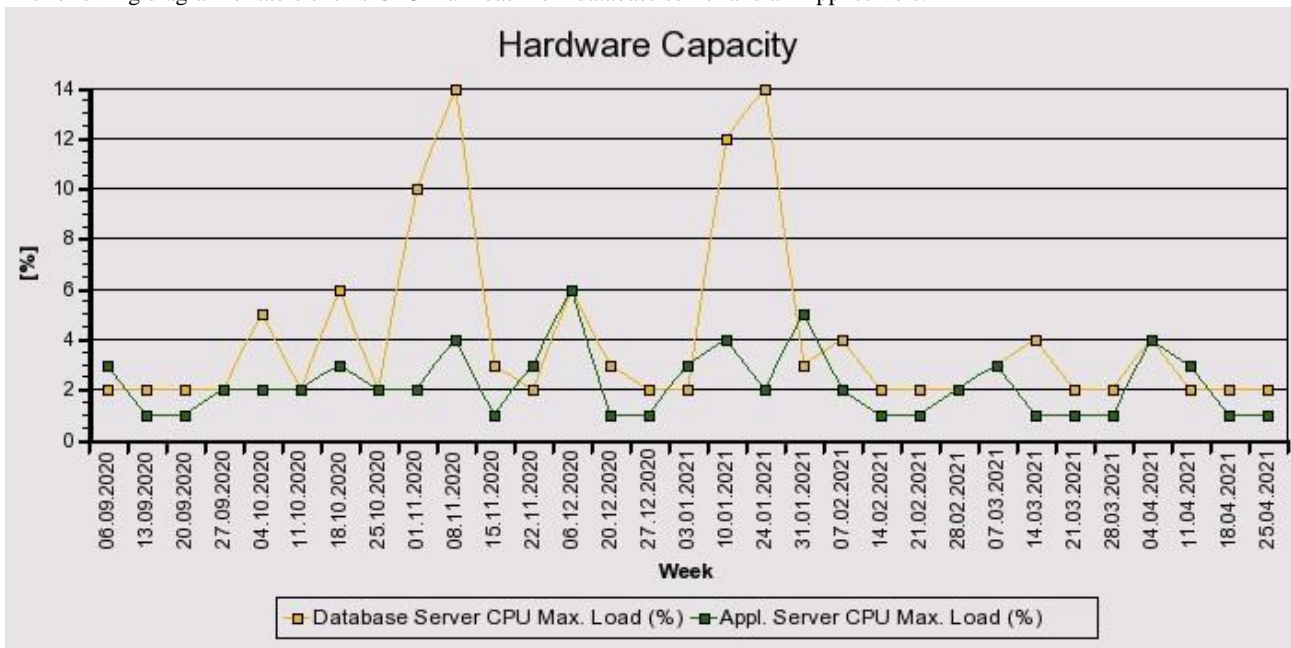
16.4 System Operation

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



16.5 Hardware Capacity

The following diagram or table shows CPU max load from database server and all Appl servers.



Report time frame: Service data was collected starting at 26.04.2021 04:35:50. This took 6 minutes.

You can see sample EarlyWatch Alert reports on SAP Service Marketplace at [EWA](#) -> Library -> Media Library.

General information about the EarlyWatch Alert is available at [SAP Note 1257308](#).