

Analysis from 20.04.2015
Until 26.04.2015
Report: PCD, Productive
Installation: 0020669062
Session: 4000000019160






EarlyWatch Alert-817961 - Metro - Productivos

1 Service Summary



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

Alert Overview

	Transport execution errors occurred during import into production
	We found more than 30 ABAP dumps in your system.
	A high number of users has critical authorizations



























Perform the following Guided Self Services.

Guided Self Service	FAQ SAP Note
Security Optimization Service	696478
Transport Execution Analysis	1621722


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

Register for an Expert-Guided Implementation Session for the Guided Self-Service at [SAP Enterprise Support Academy - Learning Studio - Calendar](#).

Check Overview

Topic Rating	Topic	Subtopic Rating	Subtopic
	SAP System Configuration		
			Database - Maintenance Phases
			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 (ABAP)
			Default Passwords of Standard Users
			Control of the Automatic Login User SAP*
			Protection of Passwords in Database Connections
			ABAP Password Policy
			Users with Critical Authorizations
	Software Change Management		
			Number of Changes
			Emergency Changes

Check Overview

Topic Rating	Topic	Subtopic Rating	Subtopic
			Failed Changes

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-SER-EWA.

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 PCD

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

Area	Indicators	Value	Trend
System Performance	Active Users (>400 steps)	134	➔
	Avg. Availability per Week	100 %	➔
	Avg. Response Time in Dialog Task	778 ms	↗
	Max. Dialog Steps per Hour	7625	➔
	Avg. Response Time at Peak Dialog Hour	677 ms	↗
	Avg. Response Time in RFC Task	100 ms	↘
	Max. Number of RFCs per Hour	20342	➔
	Avg. RFC Response Time at Peak Hour	30 ms	➔
Hardware Capacity	Max. CPU Utilization on DB Server	37 %	↗

Area	Indicators	Value	Trend
Database Performance	Avg. DB Request Time in Dialog Task	137 ms	
	Avg. DB Request Time for RFC	8 ms	
	Avg. DB Request Time in Update Task	111 ms	
Database Space Management	DB Size	264.30 GB	
	DB Growth Last Month	3.51 GB	

2 Landscape

2.1 Products and Components in current Landscape

Product

SID	SAP Product	Product Version
PCD	SAP ERP ENHANCE PACKAGE	6.05

Main Instances (ABAP or Java based)

SID	Main Instance
PCD	SAP E-Recruiting
PCD	SAP ECC Server

Databases

SID	Database System	Database Version
PCD	SQL SERVER	2008 R2

2.2 Servers in current Landscape

SAP Application Servers

SID	Host	Instance Name	Logical Host	ABAP	JAVA
PCD	mtrprsaperp	mtrprsaperp_PCD_00	mtrprsaperp	✓	

DB Servers

SID	Host	Logical Host (SAPDBHOST)
PCD	mtrprsaperp	MTRPRSAPERP

2.3 Hardware Configuration

Host Overview

Host	Hardware Manufacturer	Model	CPU Type	Virtualization	Operating System	No. of CPUs	Memory in MB
mtrprsaperp	VMware, Inc.	VMware Virtual Platform	Xeon E5-2650 0	VMWARE	Windows Server 2008 R2 (x86_64) (SP 1)	4	16383

3 Service Preparation and Data Quality of PCD



Configuration hints for optional service data are provided.

SAP ERP ENHANCE PACKAGE system PCD is fully prepared for delivery of future [remote services](#).

Rating	Check Performed
✓	Service Data Quality
✓	ST-PI and ST-A/PI Plug-Ins
✓	Service Preparation Check (RTCCTOOL)
✓	Service Data Control Center
✓	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


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 Service Data in Solution Manager Diagnostics - BW

Prio.	Report Area affected	Details and Related Infocube	SAP Note
	Workload of ABAP System PCD	Reading performance data from BW returned neither data nor an error code. A timeout may have occurred. Infocube: OCCMSMTPH used in section ' Workload Overview PCD '.	1332428

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	01R_700	1	01R_700	1
	ST-PI	2008_1_700	11	2008_1_700	11

4 Software Configuration For PCD



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

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

4.1 SAP Application Release - Maintenance Phases

SAP Product Version	End of Mainstream Maintenance	Status
EHP5 FOR 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
ACL DL	600	1		SAPK-67001INACL DL	
EA-APPL	605	8	13	SAPK-60508INEAAPPL	SAP R/3 Enterprise PLM, SCM, Finance

Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
EA-DFPS	605	8	13	SAPK-60508INEADFPS	SAP R/3 Enterprise Defense Forces & Public Security
EA-FINSERV	605	9	14	SAPK-60509INEAFINSRV	SAP R/3 Enterprise Financial Services
EA-GLTRADE	605	8	13	SAPK-60508INEAGLTRAD	SAP R/3 Enterprise Global Trade
EA-HR	605	24	63	SAPK-60524INEAHR	SAP R/3 Enterprise Human Resources
EA-IPPE	405	8	13	SAPK-40508INEAIPPE	SAP R/3 Enterprise Integrated Product and Process Engineering
EA-PS	605	8	13	SAPK-60508INEAPS	SAP R/3 Enterprise Public Services
EA-RETAIL	605	8	13	SAPK-60508INEARETAIL	SAP R/3 Enterprise Retail
ECC-DIMP	605	8	13	SAPK-60508INECCDIMP	ECC Discrete Industries Mill Products
ECC-SE	605	8	13	SAPK-60508INECCSE	ESA FAST TRACK (ECC-SE)
ERECRUIT	605	8	13	SAPK-60508INERECRUIT	SAP E-Recruiting
FI-CA	605	8	13	SAPK-60508INFICA	FI-CA, Contract Accounts Receivable and Payable (virtuell)
FI-CAX	605	8	13	SAPK-60508INFICAX	FI-CAX: Extended FI-


Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
					CA
FINBASIS	605	8	13	SAPK-60508INFINBASIS	SAP R/3 Enterprise FINBASIS
GRCPERP	V1000_700	13	18	SAPK-10313INGRCPERP	SAP GRC PlugIn for ERP
GRCPINW	V1000_700	13	19	SAPK-10313INGRCPINW	SAP GRC Plug-in for NW
INSURANCE	605	8	13	SAPK-60508ININSURANC	INSURANCE SAP Insurance
IS-CWM	605	8	13	SAPK-60508INISCWM	IS-CWM Catch Weight Management
IS-H	605	11		SAPK-60511INISH	IS-Hospital
IS-M	605	8	13	SAPK-60508INISM	IS Media
IS-OIL	605	8	13	SAPK-60508INISOIL	IS-OIL SAP OIL & GAS Upstream / Downstream
IS-PRA	605	8	15	SAPK-60508INISPRA	IS-PRA
IS-PS-CA	605	8	13	SAPK-60508INISPSCA	IS-PS-CA, Tax&Revenue; Campus Management
IS-UT	605	8	13	SAPK-60508INISUT	IS-UT
LSOFE	600	21	26	SAPK-60021INLSOFE	Learning Solution - Front End
PI_BASIS	702	11	17	SAPK-70211INPIBASIS	SAP R/3 Basis Plug-In
PLMWUI	701	8	13	SAPK-70108INPLMWUI	PLM WUI
SAP_ABA	702	11	17	SAPKA70211	SAP Application Basis
SAP_AP	700	27	32	SAPKNA7027	SAP Application Platform
SAP_APPL	605	8	13	SAPKH60508	SAP R/3 Standard
SAP_BASIS	702	11	17	SAPKB70211	SAP Basis Component

Support Packages

Software Component	Version	Patch Level	Latest Avail. Patch Level	Support Package	Component Description
SAP_BS_FND	702	9	14	SAPK-70209INSAPBSFND	SAP Business Suite Foundation
SAP_BW	702	11	17	SAPKW70211	SAP Business Information Warehouse
SAP_HR	604	47	86	SAPKE60447	SAP R/3 Standard HR
SEM-BW	605	8	13	SAPK-60508INSEMBW	SAP SEM Server
ST-A/PI	01R_700	1	2	SAPKITAB7N	SAP Service Tools for Applications Plug-In
ST-PI	2008_1_700	11	11	SAPKITLRDK	SAP Solution Tools Plug-In
WEBCUIF	701	8	13	SAPK-70108INWEBCUIF	SAP Web UIF


4.3 Database - Maintenance Phases

Database Version	End of Standard Vendor Support*	End of Extended Vendor Support*	Comment	Status	SAP Note
SQL Server 2008	08.07.2014	09.07.2019	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.

4.4 Operating System(s) - Maintenance Phases

Host	Operating System	End of Standard Vendor Support*	End of Extended Vendor Support*	Status	SAP Note
mtrprsaperp	Windows Server 2008 R2 (x86_64)	13.01.2015	14.01.2020		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.

4.5 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
mtrprsaperp_PCD_00	721	400	5	Windows Server (x86_64)

4.5.1 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://support.sap.com/patches> (patch information).

5 Hardware Capacity



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

5.1 Overview System PCD

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
mtrprsaperp	37	23.04.2015	✓	16383	11	23.04.2015	✓

6 Business Key Figures

System errors or business exceptions can be a reason for open, overdue, or unprocessed business documents or long-lasting processes. SAP Business Process Analysis, Stabilization and Improvement offerings focus on helping you to find these documents (as it may directly or indirectly negatively impact business).

This section provides an example of indicators, and its findings are a basis of further SAP offerings. In the example below, the backlog of business documents is compared to daily or weekly throughput or set in relation to absolute threshold numbers.

It provides business information to discuss possible technical or core business improvement process potential.

SAP tools and methods can help to monitor and analyze business processes in more detail.

NOTE: Overdue or exceptional business documents are often caused by system errors, *such as user handling issues, configuration or master data issues, or open documents on inactive organizational units or document types*, that can be included in the measurements. These documents are rarely processed further by the business departments and often do not have a direct impact on customer satisfaction, revenue stream, or working capital. Nevertheless, these documents can have negative impacts on other areas such as supply chain planning accuracy, performance (of other transactions, reports, or processes), and reporting quality.

6.1 SAP Business Process Analytics

With SAP Business Process Analytics in SAP Solution Manager, you can continuously analyze the above key figures and around 750 additional out-of-the-box key figures for continuous improvement potential in your SAP business processes.

With SAP Business Process Analytics, you can perform the following functions:

- (1)** Internal business process benchmarking (across organizational units, document types, customers, materials, and so on) for a number of exceptional business documents and/or for the cumulated monetary value of these documents.
- (2)** Age analysis to measure how many open documents you have from the previous years or months.
- (3)** Trend analysis for these business documents over a certain time period.
- (4)** Create a detailed list for all of these exceptional business documents in the managed system, enabling a root cause analysis to find reasons why these documents are open, overdue, or erroneous.

SAP Business Process Analytics can help you to achieve the following main goals:

- Gain global transparency of business-relevant exceptions to control template adherence
- Improve process efficiency and reduce process costs by reducing system issues and eliminating waste (for example, user handling, configuration issues, and master data issues)
- Improve working capital (increase revenue, reduce liabilities and inventory levels)
- Ensure process compliance (support internal auditing)
- Improve supply chain planning (better planning results and fewer planning exceptions)
- Improve closing (fewer exceptions and less postprocessing during period-end closing)

SAP also provides business process improvement methodology to help you identify and analyze improvement potential within your business processes using Business Process Analytics in SAP Solution Manager and visualize it for your senior management.

For more information, navigate to the following link: [here](#).

6.2 SAP Active Global Support Follow-Up Opportunities

In general, SAP Active Global Support provides several self-assessments or guided services to encourage customers to benefit from an SAP Business Process Stabilization and/or Business Process Improvement project.

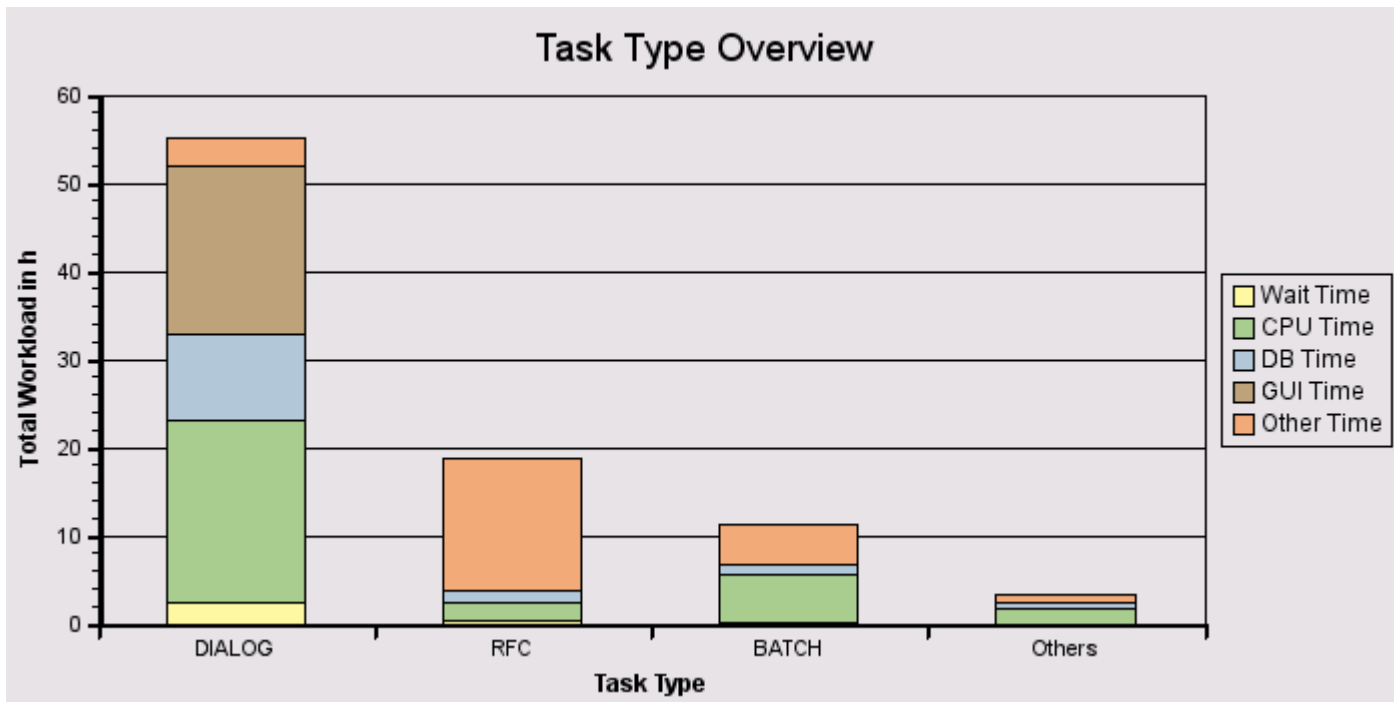
If you have an SAP Enterprise Support contract, SAP Active Global Support provides you with the following offering for obtaining business process analytics and implementing improvements:

- SAP Expert Guided Implementation Business Process Analytics and Improvement ([SAP EGI Portfolio Overview](#))
- CQC Business Process Analytics and Improvement ([fact sheet](#)).

If you have an SAP Max Attention Contract, contact your Technical Quality Manager (TQM) for information about how SAP Active Global Support can help you obtain business process analytics and implement improvements.

7 Workload of System PCD

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	55,1	2,4	20,7	9,7	19,1
RFC	18,7	0,3	2,0	1,5	0,0
BATCH	11,3	0,1	5,5	1,2	0,0
Others	3,2	0,0	1,8	0,6	0,0

7.1 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	121	121	13	255

7.2 Workload Distribution PCD

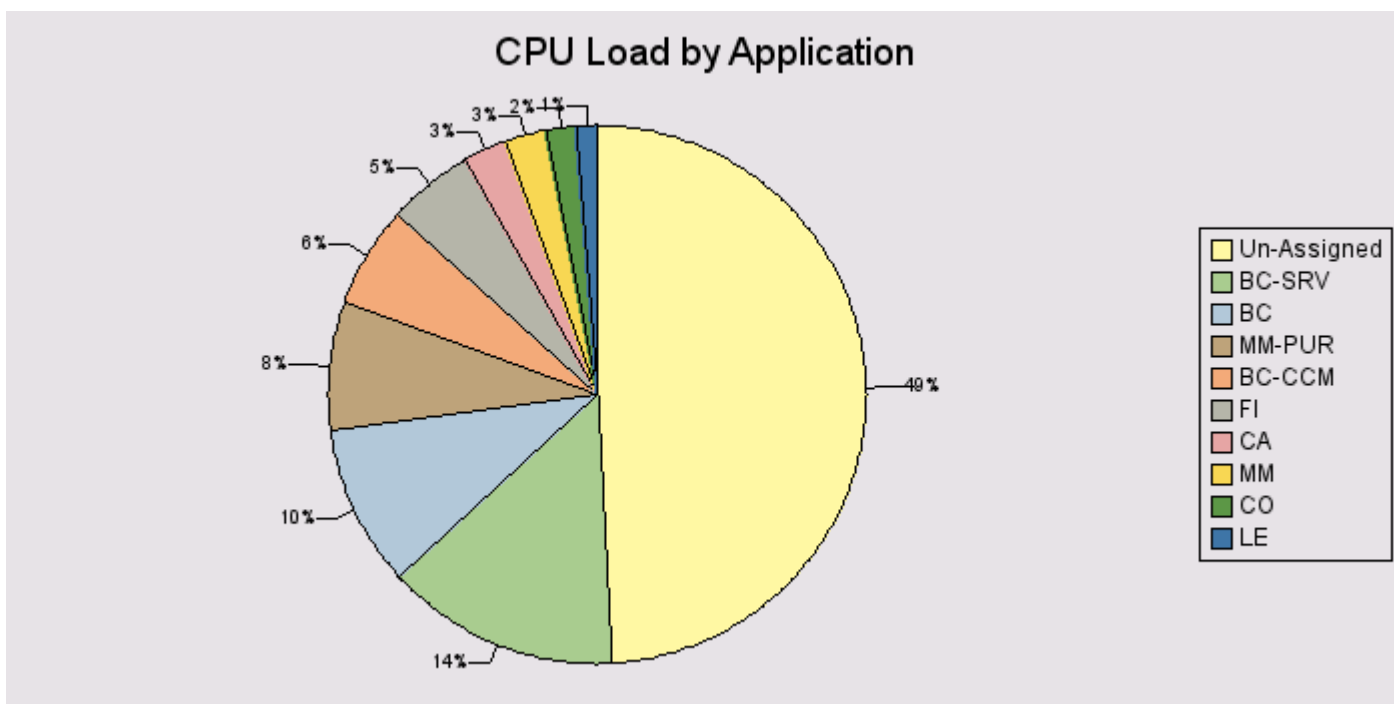
The performance of your system was analyzed with respect to the workload distribution. We did not detect any major problems that could affect the performance of your SAP system.

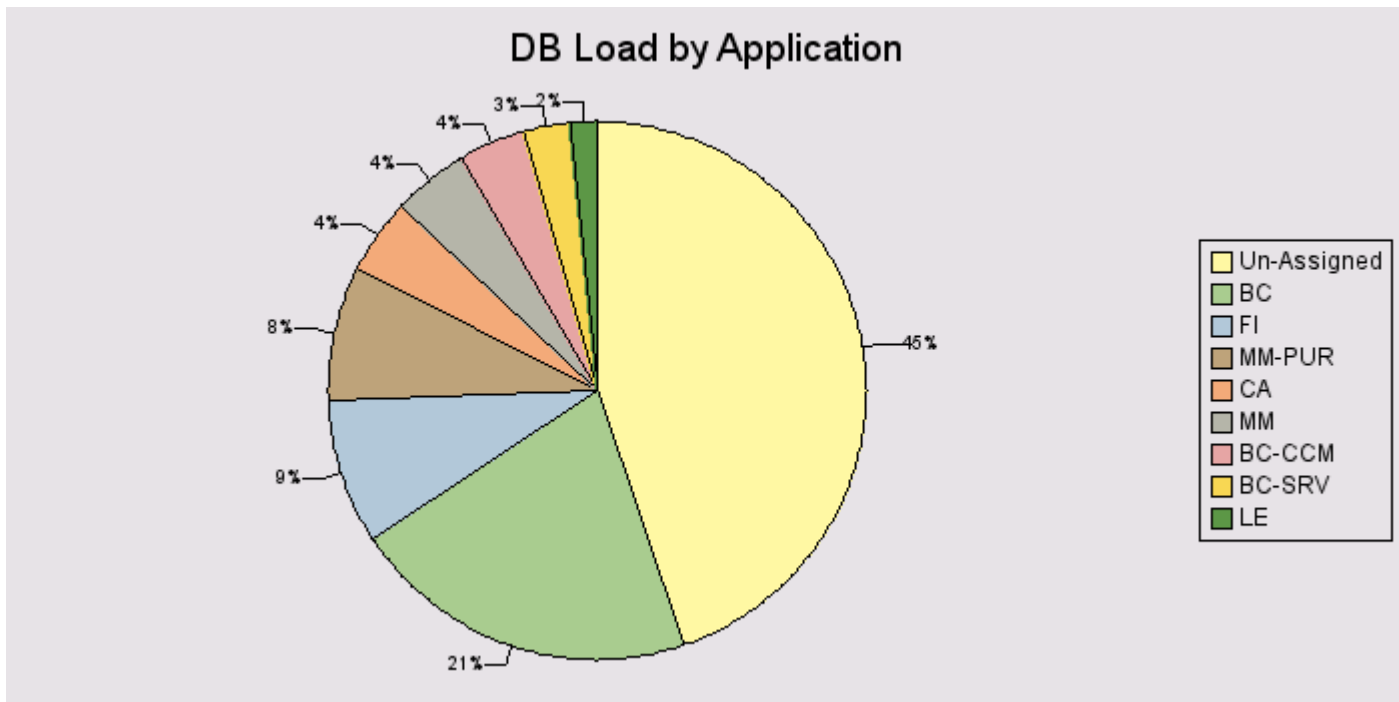
7.2.1 Workload by Application Module

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.





7.2.2 DB Load Profile

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

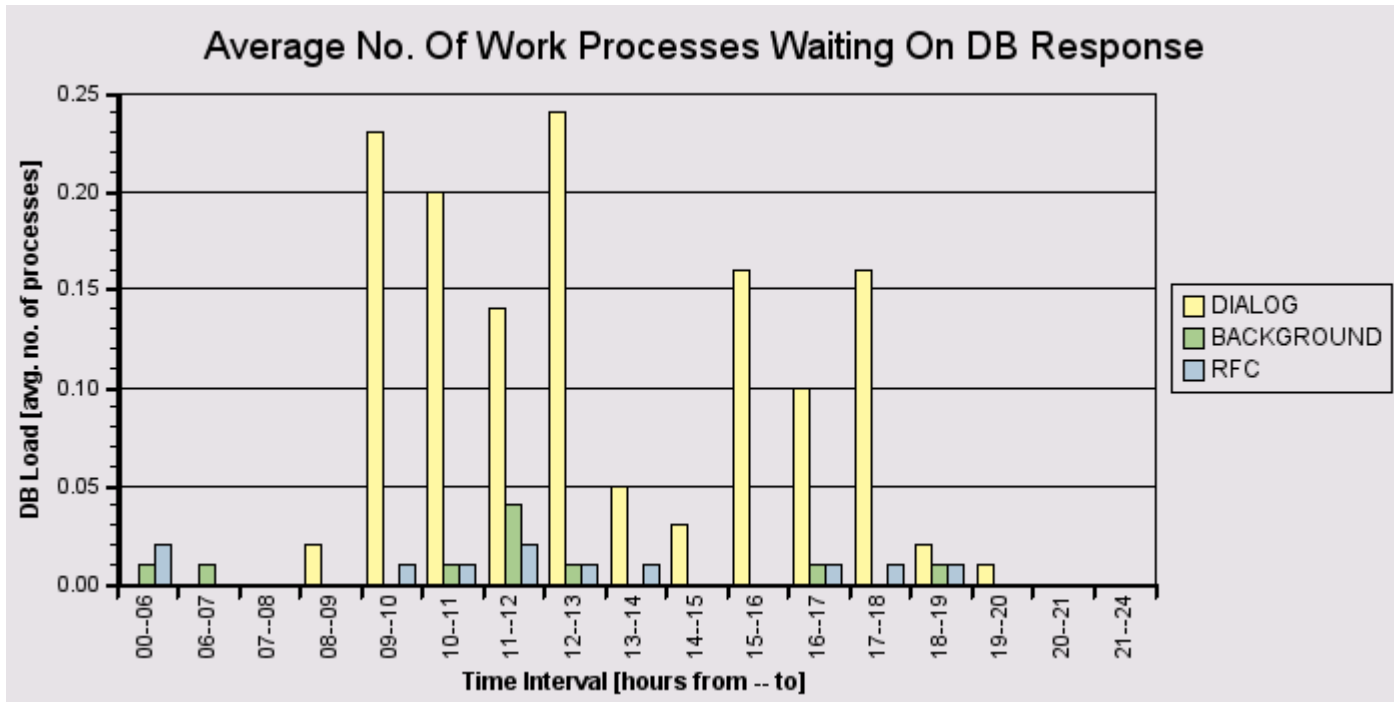
The following diagram shows the DB load caused by dialog, RFC, HTTP(S), and background tasks, over different time frames.

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.



8 Performance Overview PCD



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.

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	255033	778,4	292,9	33,4	5,0	137,4	269,4
RFC	676549	99,5	10,8	1,5	0,3	7,8	0,0

Averages of Response Time Components in ms

Task type	Dialog Steps	Response Time	CPU Time	Wait Time	Load Time	DB Time	GUI Time
UPDATE	16352	148,7	20,5	5,0	3,7	111,4	0,0
UPDATE2	3650	35,9	7,8	2,1	1,6	16,5	0,0
BATCH	35371	1.151,7	556,1	12,6	5,1	121,9	0,0
SPOOL	12199	731,8	489,3	0,9	0,8	22,0	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.

8.1 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 20000, the rating for the task is not performed (indicated by a gray icon in the table).
- RED if at least three time ranges are rated RED.
- YELLOW if two time ranges are rated RED or at least three time ranges are rated YELLOW.

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

Task	Steps	Application Server Performance			Database Server Performance	
Dia	255012					
Upd	16352					
HTTP	0					
HTTPS	0					
Rating	Task Type	Time	Dialog Steps	Response Time	CPU Time	DB Time
	Dia	18-19	4.793,0	3.003,0	1.050,0	121,0

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

8.2 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.

8.2.1 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
Z_PDF	DIA	875	27,8	73.268,2	37.605,3	2.042,6	33.364,3
ZFIAA_0007	DIA	304	4,5	33.861,9	15.978,6	17.009,5	265,9
SESSION_MANAGER	DIA	17231	4,3	580,5	36,1	32,1	206,8
ME21N	DIA	7407	2,9	919,1	88,0	34,4	749,2
ME22N	DIA	6749	2,7	934,1	178,2	53,0	602,1
ZFI_030	DIA	345	2,5	16.403,7	2.226,9	5.220,5	0,2
ZFI035	DIA	221	1,8	19.296,9	12.385,7	13.723,0	16,0
ZFI_032	DIA	36	1,5	97.157,2	39.054,4	55.570,9	3.086,2
ME51N	DIA	5539	1,5	614,5	88,5	18,4	460,5
ME23N	DIA	15890	1,5	211,1	66,0	27,8	73,5

38.1% of the total response time in the above table is caused by customer transactions.

If response 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.

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
RSTXPDF5	16	5,1	11.880,0	11.394,0	375,4
RSTXPDFT4	3	1,4	3.141,0	3.098,0	26,6
(BATCH)	18587	0,5	1.071,0	231,0	234,4
RSPO1043	7	0,4	811,0	28,0	791,5
ZCLMMINF002_ARCHIVO	7	0,4	810,0	255,0	661,8
/BDL/TASK_SCHEDULER	168	0,2	494,0	3,0	9,6
RSCONN01	2016	0,2	468,0	196,0	86,5
RSBTCRTE	8400	0,1	334,0	219,0	102,7
RSWUWFML2	2016	0,1	321,0	127,0	144,2

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
RHAUTUPD_NEW	7	0,1	283,0	121,0	113,8

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

8.2.2 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
ZFIAA_0007	DIA	304	12,8	17.009,5
ZFI035	DIA	221	7,5	13.723,0
ZFI_032	DIA	36	5,0	55.570,9
ZFI_030	DIA	345	4,5	5.220,5
Z_PDF	DIA	875	4,4	2.042,6
ZFI_LIBRO_DIARIO	DIA	384	4,3	4.512,1
ZFI_040	DIA	83	3,1	14.887,0
S_ALR_87011990	DIA	233	2,9	5.007,3
ZFI_031	DIA	204	2,5	4.929,9
ME2L	DIA	1430	2,4	683,5

44.1% 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.

Database Load by Transactions (Batch)

Transaction	Dialog Steps	Total DB Time in %	Total DB Time in s
RSPO1043	7	2,0	792,0
ZCLMMINF002_ARCHIVO	7	1,6	662,0
RSTXPDF5	16	0,9	375,0
(BATCH)	18587	0,6	234,0
RSWUWFML2	2016	0,4	144,0
RSWWERRE	504	0,3	117,0
RHAUTUPD_NEW	7	0,3	114,0
RSBTCRTE	8400	0,3	103,0

Database Load by Transactions (Batch)

Transaction	Dialog Steps	Total DB Time in %	Total DB Time in s
RSPO0041	7	0,2	97,0
RSCONN01	2016	0,2	86,0

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

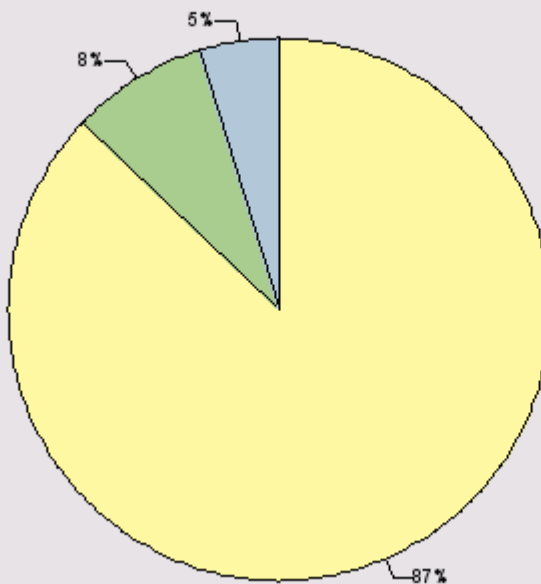
8.3 RFC Load by Initiating Action

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 PCD	16.279	82,18
Sum of external systems	3.530	17,82
RFC load (sum of above)	19.809	100,00
RFC load in Performance Overview	67.347	339,98
Load of all task types in Performance Overview	327.358	1.652,58

Load Distribution From External Systems



Top 20 RFC Calls From External Systems - 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
GRP	SPRO	884	4,46	6.184,3	3.470,9	1.468,2	4,7
GRP	GRAC_ACTION_USAGE_SYNC	354	1,79	19.688,8	17.826,6	827,8	0,3
GRP	GRAC_ALERT_GENERATION	247	1,25	1.101,1	44,6	140,3	0,5
GRP	GRAC_SOD 0400241504231#00001	238	1,20	966,4	48,8	223,3	0,3
GRP	GRAC_PFCG_AUTHORIZATION_SYNC	224	1,13	1.998,7	260,2	712,2	0,2
GRP	GRAC_SOD 0400241504241#00001	213	1,08	922,1	47,7	150,7	0,3
SSM	EFWK Resource Manager (01 Minute)	213	1,07	3.800,7	663,0	986,4	0,4
GRP	GRAC_SOD 0400241504251#00001	209	1,06	883,4	47,3	128,4	0,3
GRP	GRAC_SOD 0400241504211#00001	205	1,04	766,2	39,8	147,6	0,3
GRP	GRAC_SOD 0400241504221#00001	199	1,00	731,3	34,4	120,0	0,3
GRP	GRAC_SOD 0400451504201#00001	198	1,00	1.663,3	81,0	247,1	0,2
GRP	GRAC_REPOSITORY_OBJECT_SYNC	80	0,40	3.979,2	114,7	3.325,3	0,3
TCD	STMS	64	0,33	16.114,8	3.943,0	2.640,0	1,0
SSM	LANDSCAPE FETCH	36	0,18	751,3	18,5	45,2	0,3
MSP	LANDSCAPE FETCH	29	0,14	989,0	32,3	186,0	0,2
SCL	LANDSCAPE FETCH	26	0,13	838,5	29,7	127,6	0,5
GRP	SAPMHTTP	16	0,08	1.644,6	15,6	139,3	1.024,2
SCL	SM:SELFDIAGNOSIS	16	0,08	371,0	10,0	93,8	0,2
SCL	DIAGLS_COMPUTE_STATUS	15	0,07	524,2	7,8	12,5	0,2
SSM	SMWP_BATCH	12	0,06	414,3	4,3	4,8	0,9

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
PCD	SAP_COLLECTOR_FOR_PERFMONITOR	2.198	11,09	2.113,0	1.554,1	201,0	4,6

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

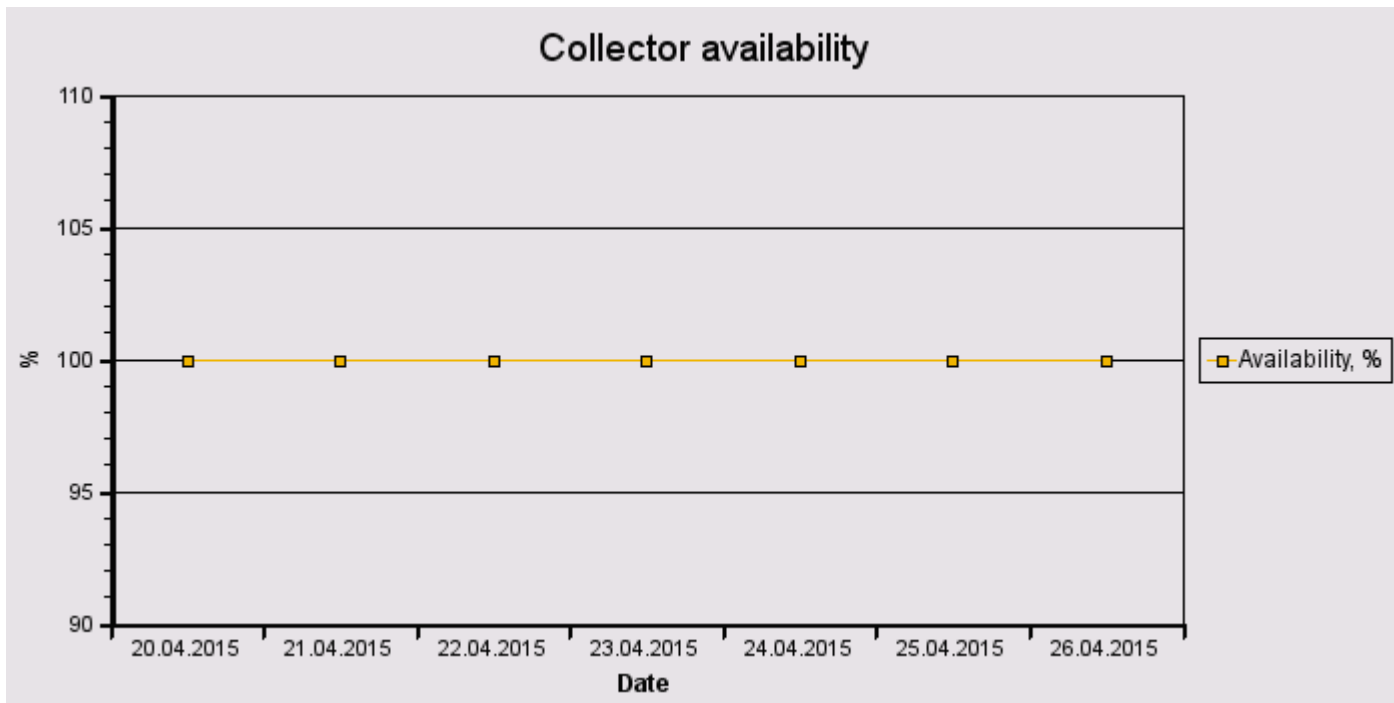
Initial System	Initial Action	Total Response Time in s	% of RFC Load	Avg. Response Time	Avg. CPU Time	Avg. DB Time	Avg. Roll Wait Time
PCD	STMS	2.146	10,84	6.771,3	1.548,2	547,2	157,8
PCD	SU01	1.482	7,48	5.108,6	1.042,3	1.402,5	3,7
PCD	ML81N	1.387	7,00	3.698,3	77,6	49,8	5,7
PCD	SUIM	1.369	6,91	34.220,6	6.267,3	10.121,6	17,4
PCD	PFCG	1.076	5,43	33.639,1	6.073,3	11.136,8	16,7
PCD	ME53N	1.020	5,15	1.711,9	61,4	39,4	277,4
PCD	ME23N	733	3,70	564,0	65,7	28,3	3,2
PCD	SBWP	718	3,63	506,8	56,7	41,9	9,0
PCD	LT12	634	3,20	814,6	188,9	165,2	3,0
PCD	ME22N	573	2,89	2.309,8	62,1	33,5	3,0
PCD	MM02	372	1,88	4.273,7	71,9	21,5	2,7
PCD	ME51N	335	1,69	1.049,8	60,2	98,4	11,3
PCD	RM06BA00	328	1,65	6.182,0	65,1	38,9	3.225,7
PCD	ME21N	299	1,51	1.216,6	53,6	70,5	214,4
PCD	ME33K	240	1,21	1.110,1	68,5	34,8	3,0
PCD	MIGO	174	0,88	363,8	59,5	72,0	2,6
PCD	MM03	168	0,85	3.102,2	101,7	19,5	9,4
PCD	ME2N	164	0,83	940,6	73,0	28,6	4,6
PCD	ML84	163	0,82	1.468,1	79,4	22,9	5,2

9 SAP System Operating PCD



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

9.1 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."

9.2 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.

9.3 Table Reorganization

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

9.4 Transports

Transports were not found in the period analyzed.

9.5 Program Errors (ABAP Dumps)

32 ABAP dumps have been recorded in your system in the period 20.04.2015 to 26.04.2015. 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				
20.04.2015	3				
21.04.2015	1				
22.04.2015	9				
23.04.2015	16				
24.04.2015	1				
25.04.2015	1				
26.04.2015	1				

Name of Runtime Error	Dumps	Server (e.g.)	User (e.g.)	Date (e.g.)	Time (e.g.)
SYSTEM_CANCELED	3	mtrprsaperp_PCD_00	GMARCHANT	22.04.2015	16:02:57
TIME_OUT	3	mtrprsaperp_PCD_	SASCANIO	23.04.201	09:02:1

Name of Runtime Error	Dumps	Server (e.g.)	User (e.g.)	Date (e.g.)	Time (e.g.)
		00		5	3
TSV_TNEW_PAGE_ALLOC_FAILED	13	mtrprsaperp_PCD_00	NOVIS	23.04.2015	15:22:59
MEM_ALLOC_FAILED	2	mtrprsaperp_PCD_00	CASTORGA	23.04.2015	16:12:12
RAISE_EXCEPTION	11	mtrprsaperp_PCD_00	PACUÑA	26.04.2015	06:01:08

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, send a customer message to SAP to request support.

10 Security



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

Rating	Check
⚠	System Recommendations (ABAP)
✓	Default Passwords of Standard Users
✓	Control of the Automatic Login User SAP*
✓	Protection of Passwords in Database Connections

Rating	Check
✓	ABAP Password Policy
✓	Gateway and Message Server Security
⚠	Users with Critical Authorizations

10.1 ABAP Stack of PCD

10.1.1 System Recommendations (ABAP)

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, go to <http://service.sap.com/sysrec>.

10.1.2 ABAP Password Policy

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

10.1.3 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.

10.1.3.1 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	2	12	!
001	2	5	!
400	1	303	!

Authorization profile: SAP_ALL

11 Software Change and Transport Management of PCD



**Critical software change management issues were found in your system.
See the information in the following sections.**

11.1 SAP Netweaver Application Server ABAP of PCD

Rating	Check Performed
!	Number of Changes
!	Emergency Changes
✖	Failed Changes

11.1.1 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.

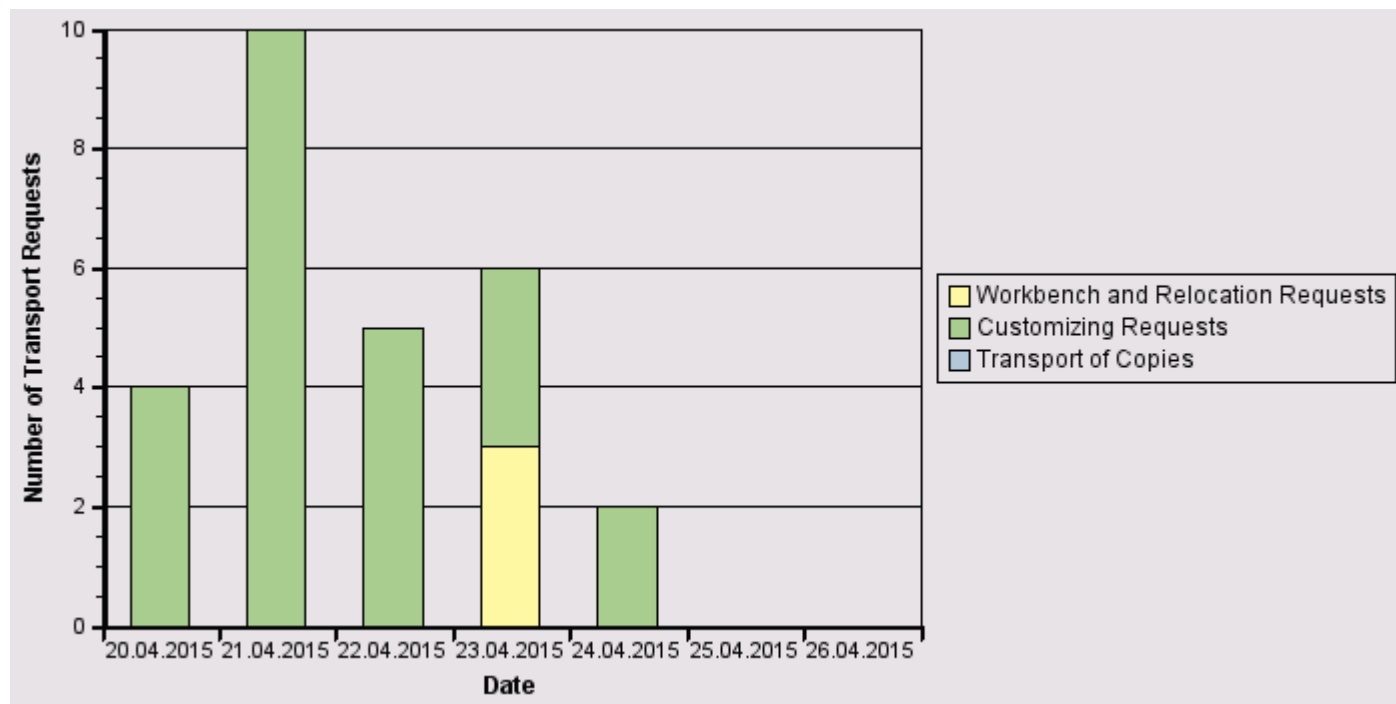
No data from the managed system could be found in the configuration and change database (CCDB). Check whether the diagnostics setup for the managed system has been performed as described in SAP Note [1472465](#).

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.

11.1.2 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
20.04.2015	0	4	0
21.04.2015	0	10	0
22.04.2015	0	5	0
23.04.2015	3	3	0

Date	Workbench and Relocation Requests	Customizing Requests	Transport of Copies
24.04.2015	0	2	0

11.1.3 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
20.04.2015	0	64	0
21.04.2015	0	130	0
22.04.2015	0	80	0
23.04.2015	13	48	0
24.04.2015	0	18	0

11.1.4 Emergency Changes

We analyzed the number of emergency changes in system PCD 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	23	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.


Transport Requests with a short Transition Time

Request	User	Export from DEV	Import in PRD
DCDK913670	NOVIS	20.04.2015 09:02:34	20.04.2015 09:06:05
DCDK913672	NOVIS	20.04.2015 11:32:31	20.04.2015 11:34:48
DCDK913674	NOVIS	20.04.2015 15:49:17	20.04.2015 15:52:48
DCDK913676	NOVIS	20.04.2015 16:10:27	20.04.2015 16:17:31
DCDK913678	NOVIS	20.04.2015 18:04:37	21.04.2015 12:25:37
...			

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.

11.1.5 Failed Changes

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

Rating	Item	Value	Explanation
	Transport requests with	25	Number of transport requests with import errors that were not resolved within one

Rating	Item	Value	Explanation
	import errors		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.

Import Errors

Request	Import Date in PRD	Return Code	Import Step	Number of Failed Objects	Number of Objects in Request
DCDK913659	23.04.2015	0016	Import preview	1	6
DCDK913670	20.04.2015	0016	Import preview	14	16
DCDK913672	20.04.2015	0016	Import preview	14	16
DCDK913674	20.04.2015	0016	Import preview	14	16
DCDK913676	20.04.2015	0016	Import preview	14	16
...					

Recommendation: Import errors occurred in the last week. This means that transported objects or dependent objects could not be activated correctly. Make sure that these errors have been fixed in production.
 Import errors should already be detected during imports into the QA environment and fixed by a correction transport. Both transports must then be imported into the production system together.

12 Data Volume Management (DVM)



A statement regarding Data Volume Management on your system PCD could not be provided.

This report does not have a Data Volume Management (DVM) section because your SAP Solution Manager system does not fulfill the technical requirements, or the ST-A/PI release on your system PCD is too low (or could not be identified). For more information, see SAP Note [2036442](#).

As a workaround, an attempt was made to check the database size and growth per year for your system PCD. However, the database size or growth per year could not be collected. As a consequence, a statement regarding Data Volume Management in your system PCD could not be provided.

13 Database Performance for PCD



Some performance problems have been detected in your database system. Please implement the recommendations provided in the following sections.

13.1 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
File ID 1	40952800	15.04	1562739	7.36	5.48	5.91
File ID 2	62161	0.02	8199463	38.64	3.28	49.89
File ID 3	33073944	12.15	1174354	5.53	5.50	6.30
File ID 4	33740651	12.39	1156310	5.45	5.51	6.46
File ID 5	16100502	5.91	691209	3.26	5.41	6.74
File ID 6	40894034	15.02	1904528	8.97	5.59	6.82
File ID 7	41076489	15.09	1870728	8.82	5.53	6.82
File ID 8	40911303	15.03	1909341	9.00	5.59	6.81
File ID 9	25430035	9.34	2752130	12.97	5.64	6.71
Total	272241919	100	21220802	100	4.68	6.57

IO related wait events

Wait type	Wait time (ms)	Requests	Wait time / Requests	Reference Value	Rating
Analysis timeframe (ms):	8.060.473.300				
PAGEIOLATCH_SH	313.513.790	145.007.600	2,16	15,00	✓

IO related wait events

Wait type	Wait time (ms)	Requests	Wait time / Requests	Reference Value	Rating
ASYNC_IO_COMPLETION	53.383.500	756	70.613,10		
PAGEIOLATCH_EX	19.467.080	5.458.231	3,57		
WRITELOG	12.425.256	5.573.110	2,23	6,00	✓
IO_COMPLETION	2.782.315	5.766.986	0,48		
PAGEIOLATCH_UP	144.643	39.513	3,66		

13.2 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	93 %	>= 97 %
PROCEDURE CACHE HIT RATIO	Indicates how often stored procedures were found in memory	97 %	> 80 %

13.3 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):	8.060.473.300			
PAGEIOLATCH_SH	313.513.790	145.007.600	2,16	
ASYNC_NETWORK_IO	161.789.840	744.570.880	0,22	
BACKUPIO	135.391.390	3.065.008	44,17	
BACKUPTHREAD	80.386.128	35.766	2.247,56	
BACKUPBUFFER	63.624.468	5.492.852	11,58	
ASYNC_IO_COMPLETION	53.383.500	756	70.613,10	
PAGEIOLATCH_EX	19.467.080	5.458.231	3,57	
WRITELOG	12.425.256	5.573.110	2,23	

13.4 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 PCD.

14 Database Administration for PCD



Some problems regarding database administration have been found. Check the following sections for possible problems that may be caused by the way you administrate your database.

Note: A remote service cannot verify certain important aspects of your administration strategy, such as your offsite storage of database backups and whether the backup tapes can be read correctly.

14.1 Database Files

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

14.1.1 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.

14.1.2 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	303600	✓
used size	277073	◇
free	26527	⚠
free in partition E	95650	◇
total free	122177	✓

14.1.3 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 spindle.
2. For all data files in the R/3 system, enable the "Autogrowth" option using SQL Server tools. Set the file growth to at least 100 MB.
3. As of SQL Server 2008 on Windows 2008R2, you can rely on the automatic growth feature if a number of prerequisites are met. Please check [SAP Note 1238993](#) for details.
4. After a manual or an automatic file expansion, ensure that all data files have approximately the same amount of free space.

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:\PCDDATA1\PCDDATA1.mdf	✓	✓	✓	10.00 %	1407 MB		✓
E:\PCDDATA2\PCDDATA2.ndf	✓	✓	✓	10.00 %	872 MB		✓
E:\PCDDATA3\PCDDATA3.ndf	✓	✓	✓	10.00 %	870 MB		✓
E:\PCDDATA4\PCDDATA4.ndf	✓	✓	✓	10.00 %	602 MB		✓
E:\PCDDATA5\PCDDATA5.ndf	✓	✓	✓	10.00 %	3232 MB		✓
E:\PCDDATA6\PCDDATA6.ndf	✓	✓	✓	10.00 %	3086 MB		✓
E:\PCDDATA7\PCDDATA7.ndf	✓	✓	✓	10.00 %	3093 MB		✓
E:\PCDDATA8\DC4DATA8.ndf	✓	✓	✓	10.00 %	13365 MB		✓

The data file settings in system PCD are correct.

14.1.4 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
L:\PCDLOG1\PCDLOG1.ldf	✓	✓	✓	10.00 %

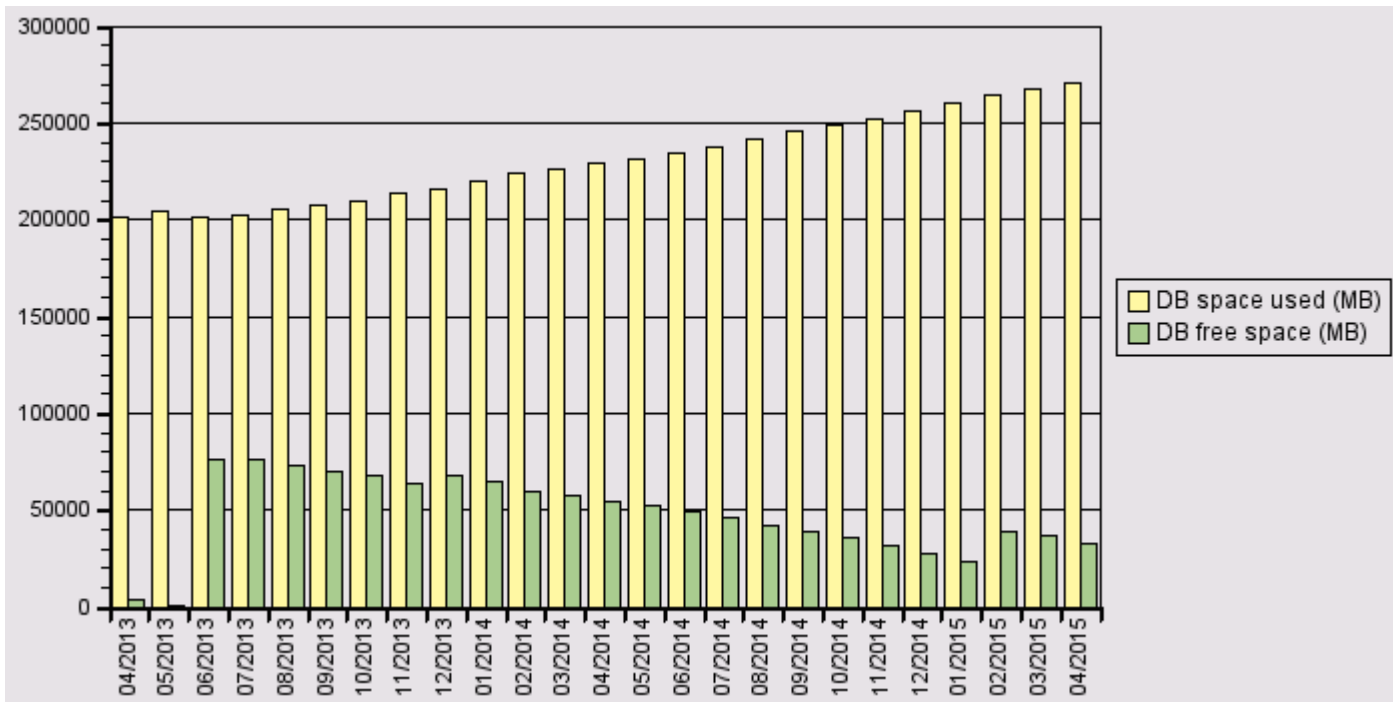
The log file settings in system PCD are correct.

14.2 Environment and Operating

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

14.2.1 Database Growth

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



14.2.2 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
SOFFCONT1	46054504	46079072	46071736	1833762	230170
REPOLOAD	15376928	15460568	15401016	286285	12737
DYNPSOURCE	14786000	14896584	14802808	213199	43003
DD03L	4665112	12836248	12677472	7847549	34650

Table Name	Data (kB)	Reserved (data + indexes) kB	Used (data + indexes) kB	Rows	Modified Rows
FAGLFLEXA	5071736	10034736	10029496	9785608	612033
REPOSRC	7825448	8246128	8224328	3707832	34924
D010TAB	2857792	7125520	7122448	32614236	228280
TST03	6572096	6742536	6675968	822719	19688
FAGL_SPLINFO	3602400	5889296	5883896	4291817	235429
ANLP	4765480	5728856	5726760	5821100	0

14.2.3 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
4305	10.50.4305	2938478 Cumulative update package 12 (CU12) for SQL Server 2008 R2 Service Pack 2	21.04.2014
	10.50.4319	2967540 Cumulative update package 13 (CU13) for SQL Server 2008 R2 Service Pack 2	30.06.2014
	10.50.4321	2977319 MS14-044: Description of the security update for SQL Server 2008 R2 Service Pack 2 (QFE)	12.08.2014
	10.50.4331	2987585 Restore Log with Standby Mode on an Advanced Format disk may cause a 9004 error in SQL Server 2008 R2	27.08.2014
	10.50.6000	SQL Server 2008 R2 Service Pack 3 (SP3)	26.09.2014

Ensure that you are always using the latest SQL Server builds. Detailed information about all SQL server builds is provided at [Microsoft Knowledge Base Article 321185](#).

14.2.4 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	◆

14.2.5 SAP Notes for SQL Server

The following SAP Notes contain useful information to operate the ERP ENHANCE PACKAGE R/3 ERP system on SQL Server.

SAP Note	Title
1085937	Wait Event Analysis For SQL Server
111291	FAQ: SQL server analysis and avoiding deadlocks
1152848	FAQ: SQL Server Wait Events
1237682	Configuration Parameters for SQL Server 2008
555223	FAQ: Microsoft SQL Server
62988	Service packs for Microsoft SQL Server
806342	FAQ: Analyzing exclusive database locks on SQL Server

15 Database server load from expensive SQL statements - PCD



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

Database Load From Expensive Statements

Rating	Logical reads [%]	Physical reads [%]	Elapsed time [%]
✓	65	40	48

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 overall section rating is linked to the above table rating; the ratings are described in [SAP Note 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 $\leq 100,000,000$, 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 "/").

16 Database and ABAP Load Optimization of PCD



We analyzed your SAP system and found expensive SQL statements or transaction design or performance problems. Follow the recommendations below to improve performance of this SAP system.

16.1 Analysis of DB SQL CACHE on 27.04.2015 04:54:10

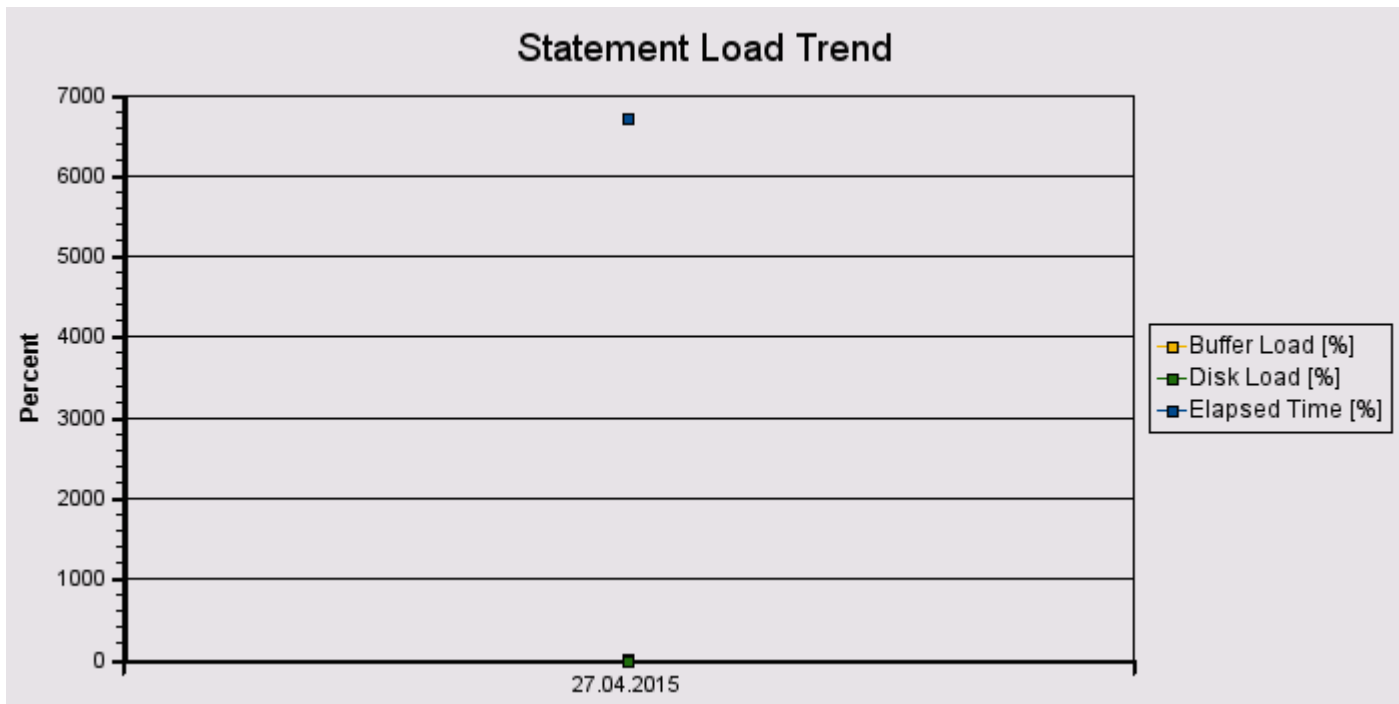
Expensive SQL Statements Overview

Object Name	Elapsed time [%]	Calls [%]	Calls	Total rows	Logical reads [%]	Physical reads [%]	CPU time [%]
<unknown>	8	0	6717	115399964	20	20	11
sys.dm_exec_query_stats	13	0	6718	54370159	16	0	22
<unknown>	3	0	6718	54370159	9	9	5
sap_perfvali	1	0	6717	8537307	4	0	1
TTREE_SFW_NODES	1	0	451694	285204	4	0	1
sap_perfvali	1	0	6718	8478116	4	0	1
sys.indexes	3	0	34	1003132	2	2	1
sys.indexes	18	2	2564331	2563955	2	9	2
<unknown>	0	0	6718	5591988	2	0	0
<unknown>	0	0	6717	5499139	2	0	0

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.

16.1.1 Access on <UNKNOWN> in NONABAP



Statement Data:

Cache Statistics

Object type	Total executions	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	6717	5774695	0,05	17180	1

```
insert into sap_workload_snapshot select * from #c -- -- Collect some
performance counters --
```

Execution Plan

No explain

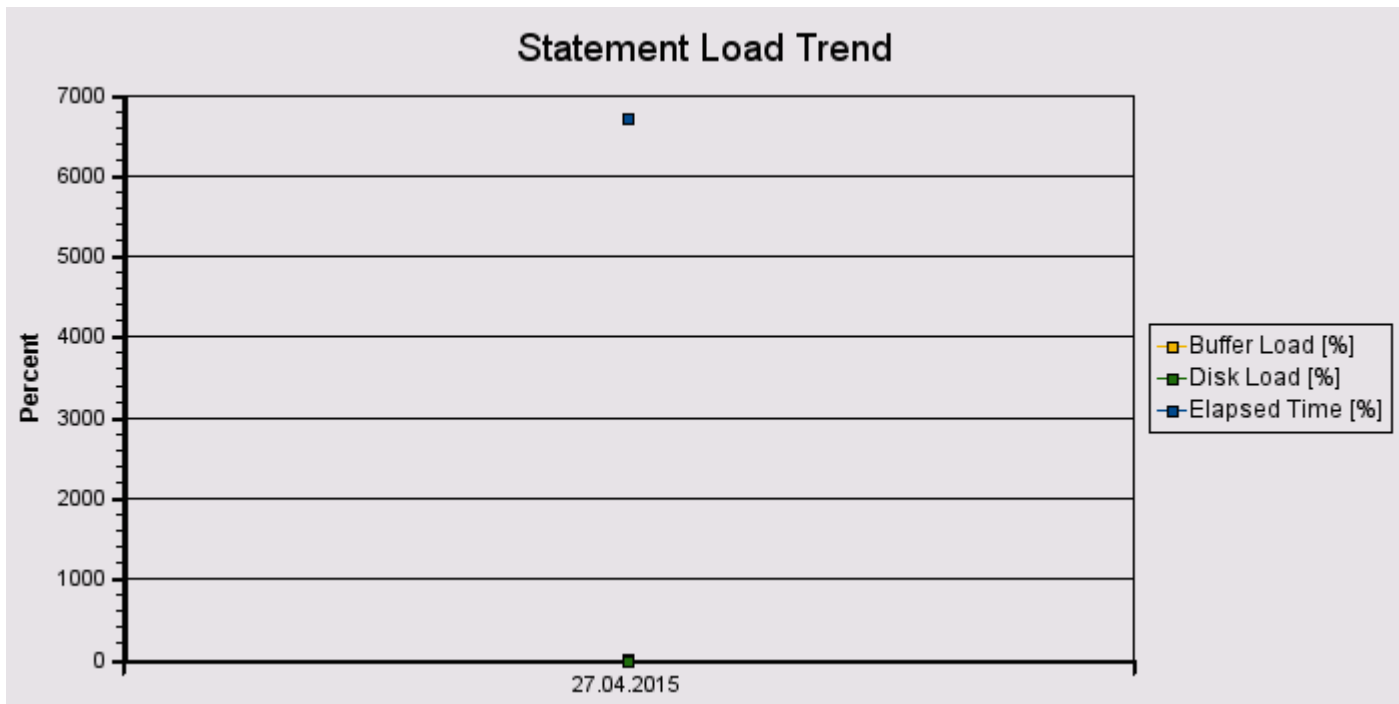
SQL Scripts

This statement comes from an expensive SQL script or from a stored procedure (SP) which exists at DB level and is not originated from the ABAP stack. We cannot analyze this statement in detail.

Recommendation: Check if:

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

16.1.2 Access on SYS.DM_EXEC_QUERY_STATS in NONABAP



Statement Data:

Cache Statistics

Object type	Total executions	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	6718	9598735	0,18	8093	1

```
select @start_date as timestamp,* into #c from sys.dm_exec_query_stats where
(select text from sys.
dm_exec_sql_text(sql_handle)) not like '%sap[_]%' -- Check that all columns
in sys.dm_exec_query_stats exist in
-- sap_workload_snapshot. If an SP has been applied which adds columns --
to sys.dm_exec_query_stats for example. -- In
that case we have to drop table sap_workload_snapshot
```

Execution Plan

No explain

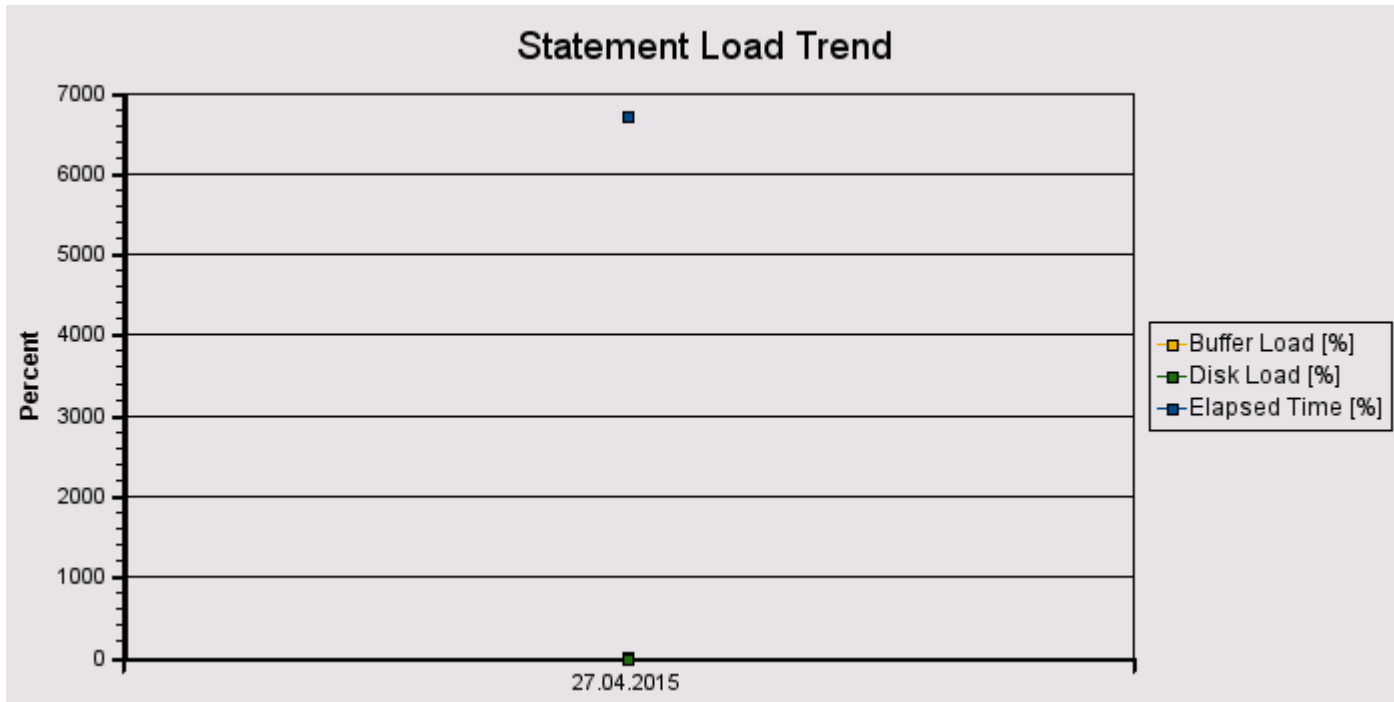
SQL Scripts

This statement comes from an expensive SQL script or from a stored procedure (SP) which exists at DB level and is not originated from the ABAP stack. We cannot analyze this statement in detail.

Recommendation: Check if:

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

16.1.3 Access on <UNKNOWN> in NONABAP



Statement Data:

Cache Statistics

Object type	Total execution s	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	6718	2467187	0,05	8093	1

```
insert into sap_workload_snapshot select * from #c -- -- Collect some performance counters --
```

Execution Plan

No explain

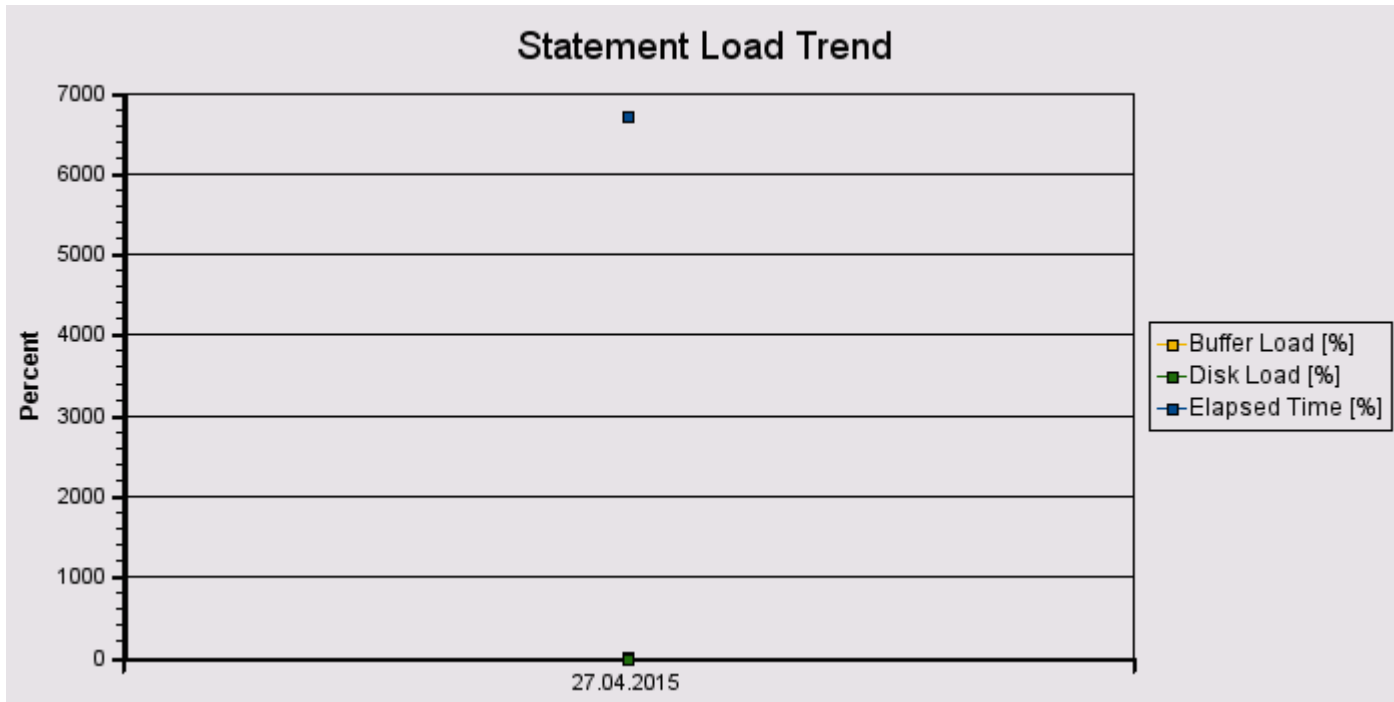
SQL Scripts

This statement comes from an expensive SQL script or from a stored procedure (SP) which exists at DB level and is not originated from the ABAP stack. We cannot analyze this statement in detail.

Recommendation: Check if:

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

16.1.4 Access on SAP_PERFVALI in NONABAP



Statement Data:

Cache Statistics

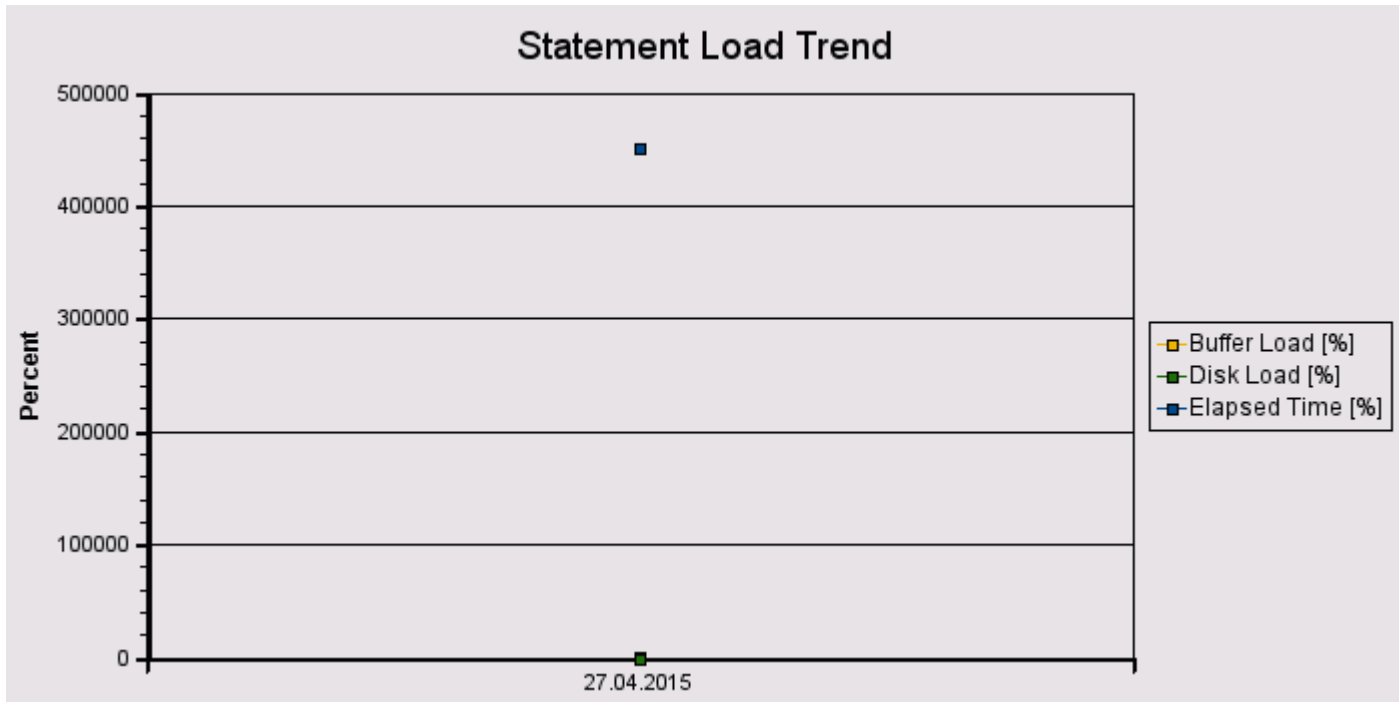
Object type	Total execution s	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	6717	716453	0,08	1271	1

```
UPDATE #perfinfo SET accumulat = b.accumulat, to_id = ( SELECT MAX(to_id)
FROM
sap_perfvali c
WHERE
c.counter_id = a.COUNTER_ID AND c.inst_name = a.INST_NAME )
FROM
#perfinfo a, @perfctr b
WHERE
a.COUNTER_ID = b.counter_id -- Join the counter value of the previous
measurement
```

Execution Plan

No explain

16.1.5 Access on TTREE_SFW_NODES in SAPLSHI25



Statement Data:

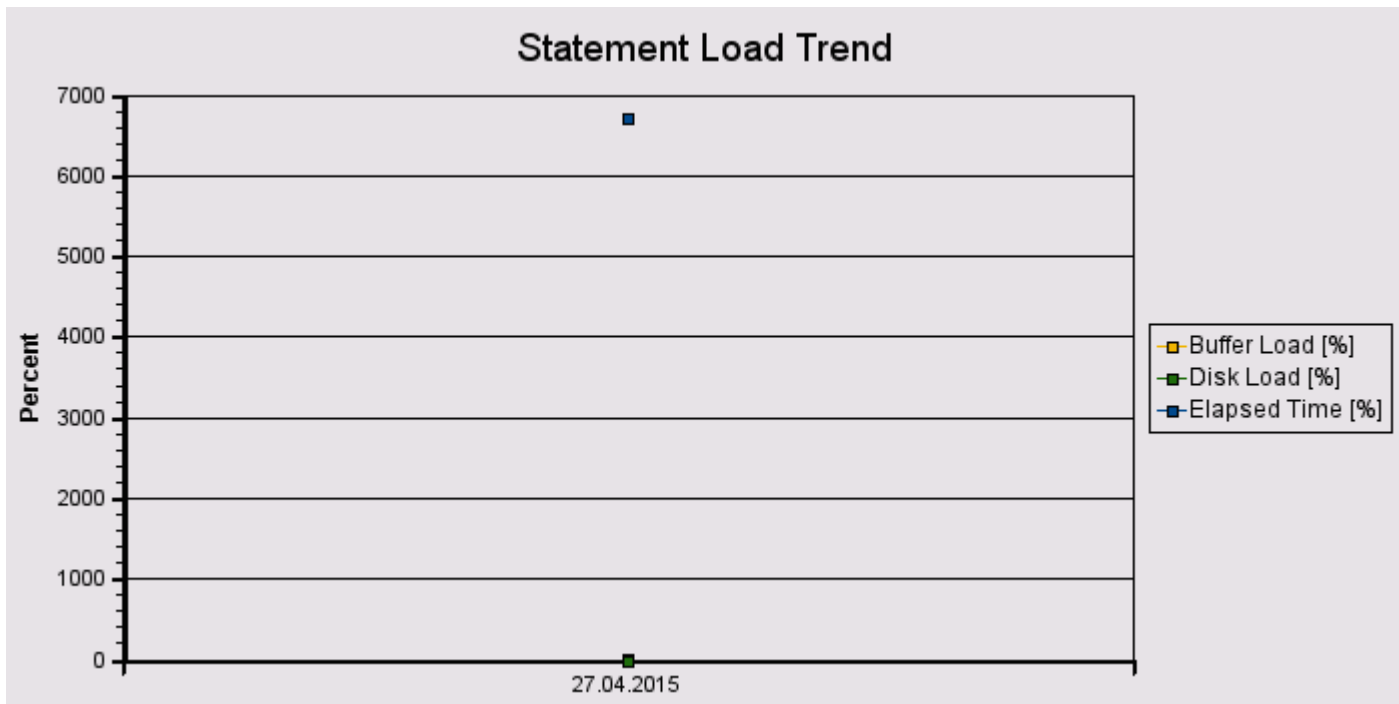
Cache Statistics

Object type	Total execution s	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	451694	589855	1,31	1	1

```

SELECT T_00 ."SFW_ASS_ID" ,T_00 ."SWITCH_ID" ,T_00 ."TREE_ID" ,T_00
."NODE_ID" ,T_00 ."REACTION"
FROM
"TTREE_SFW_NODES" T_00 ,(SELECT "C_01" = @P1 , "C_02" = @P2 UNION SELECT
@P3 , @P4 UNION SELECT @P5 , @P6 UNION SELECT @P7 ,
@P8 UNION SELECT @P9 , @P10 UNION SELECT @P11 , @P12 UNION SELECT @P13 ,
@P14 UNION SELECT @P15 , @P16 UNION SELECT @P17 ,
@P18 UNION SELECT @P19 , @P20 UNION SELECT @P21 , @P22 UNION SELECT @P23 ,
@P24 UNION SELECT @P25 , @P26 UNION SELECT @P27
, @P28 UNION SELECT @P29 , @P30 UNION SELECT @P31 , @P32 UNION SELECT @P33
, @P34 UNION SELECT @P35 , @P36 UNION SELECT
@P37 , @P38 UNION SELECT @P39 , @P40 UNION SELECT @P41 , @P42 UNION SELECT
@P43 , @P44 UNION SELECT @P45 , @P46 UNION
SELECT @P47 , @P48 UNION SELECT @P49 , @P50 UNION SELECT @P51 , @P52 UNION
SELECT @P53 , @P54 UNION SELECT @P55 , @P56
UNION SELECT @P57 , @P58 UNION SELECT @P59 , @P60 UNION SELECT @P61 , @P62
UNION SELECT @P63 , @P64 UNION SELECT @P65 ,
@P66 UNION SELECT @P67 , @P68 UNION SELECT @P69 , @P70 UNION SELECT @P71 ,
@P72 UNION SELECT @P73 , @P74 UNION SELECT @P75
, @P76 UNION SELECT @P77 , @P78 UNION SELECT @P79 , @P80 UNION SELECT @P81
, @P82 UNION SELECT @P83 , @P84 UNION SELECT
@P85 , @P86 UNION SELECT @P87 , @P88 UNION SELECT @P89 , @P90 UNION SELECT
@P91 , @P92 UNION SELECT @P93 , @P94 UNION

```

Statement Data:

Cache Statistics

Object type	Total execution s	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	6718	553001	0,07	1262	1

```

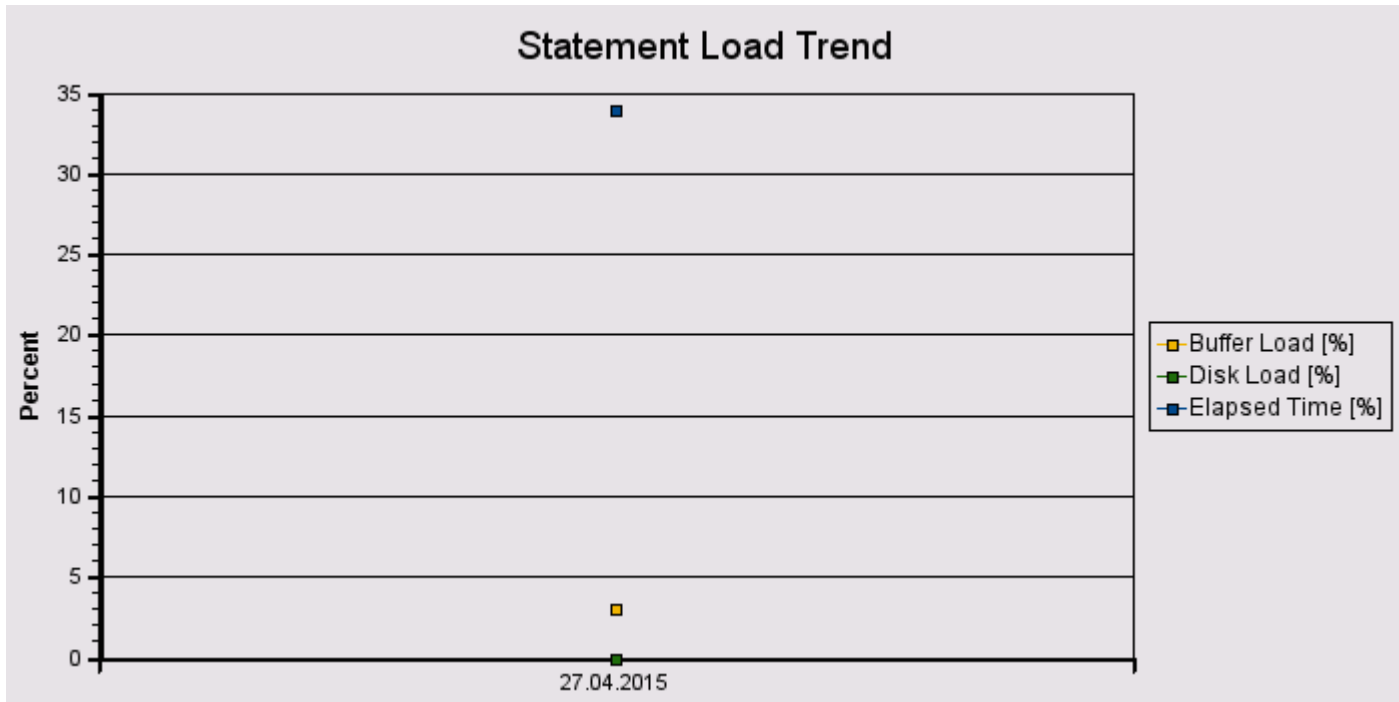
UPDATE #perfinfo SET accumulat = b.accumulat, to_id = ( SELECT MAX(to_id)
FROM
sap_perfvali c
WHERE
c.counter_id = a.COUNTER_ID AND c.inst_name = a.INST_NAME )
FROM
#perfinfo a, @perfctr b
WHERE
a.COUNTER_ID = b.counter_id -- Join the counter value of the previous
measurement

```

Execution Plan

No explain

16.1.7 Access on SYS.INDEXES in NONABAP



Statement Data:

Cache Statistics

Object type	Total execution s	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	34	2018289	2,01	29504	1

```

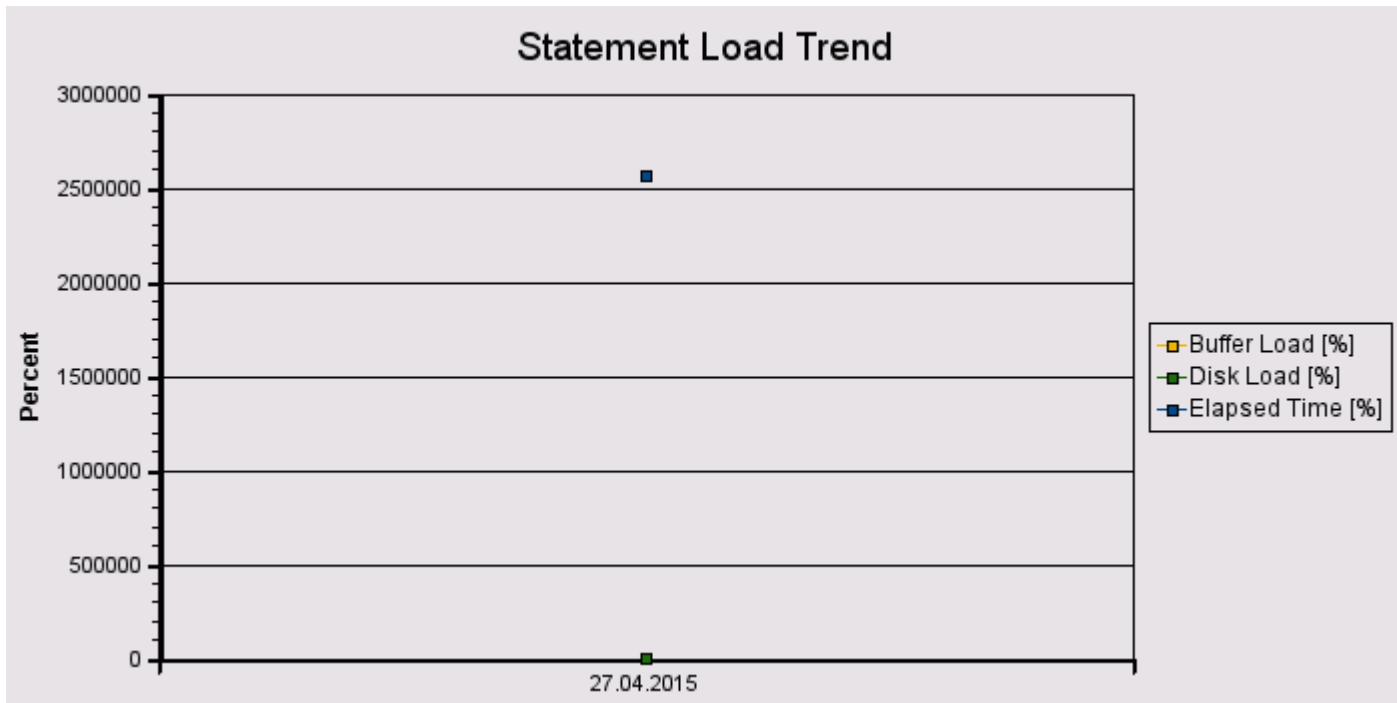
INSERT INTO @size_sample select MAX(ISNULL(new.sampledate,'')),
MAX(ISNULL(old.sampledate,'')),
[object_id], OBJECT_NAME(OBJECT_ID) AS [NAME] ,
schema_id(object_schema_name([object_id])) AS [SCHEMA] , [index_id] ,
sum(used_page_count) * 8 AS
USED_KB, sum(reserved_page_count) * 8 AS RESERVED_KB, sum(row_count) AS
ROW_COUNT,
stats_date([object_id],[index_id]) AS [STATS_DATE], ( select count(*) from
sys.indexes where
object_id = ps.object_id and indexproperty(object_id,name,'IsStatistics')
= 0 ) AS NUM_INDEXES, ( select count(*) from sys.stats where object_id =
ps.
object_id and indexproperty(object_id,name,'IsStatistics')
= 1 ) AS NUM_STATS from sys.dm_db_partition_stats ps left outer join
sap_tabstats_V_newest new
on ps.object_id = object_id( new.tablename ) and
schema_id(object_schema_name([object_id])) = new.uid
left outer join sap_tabstats_V_oldest old on ps.object_id = object_id(
old.tablename ) and
schema_id(object_schema_name([object_id])) = old.uid where ps.object_id >
100 group by [object_id],
[index_id] having sum(reserved_page_count) > 0 -- delete tables from
sap_tabstats which don't exist anymore

```

Execution Plan

Statement not in PCD

16.1.8 Access on SYS.INDEXES in NONABAP



Statement Data:

Cache Statistics

Object type	Total execution s	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	2564331	13654966	5,32	1	1

```
select @clus_index = name, @auto_update = case indexproperty(@objid,name,
'IsAutoStatistics') when 0 then 'F' else 'T'
end, @page_locks = case indexproperty(@objid,name,
'IsPageLockDisallowed') when 0 then 'T' else 'F'
end, @row_locks = case indexproperty(@objid,name,
'IsRowLockDisallowed') when 0 then 'T' else 'F'
end, @index_depth = indexproperty(@objid,name,'IndexDepth') from
sys.indexes where object_id = @objid
and index_id = 1
```

Execution Plan

Statement not in PCD

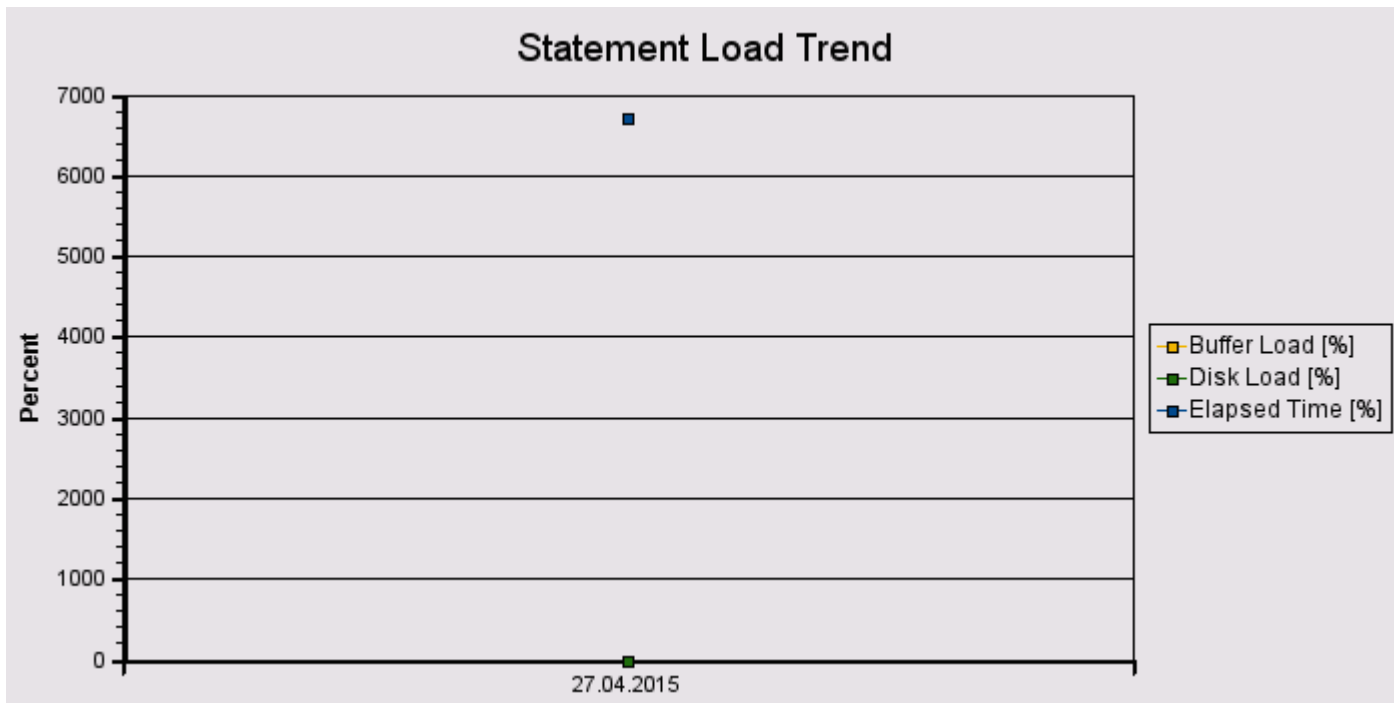
SQL Scripts

This statement comes from an expensive SQL script or from a stored procedure (SP) which exists at DB level and is not originated from the ABAP stack. We cannot analyze this statement in detail.

Recommendation: Check if:

- a) The script or SP has to be run at all.
- b) The script or SP can be run less frequently.
- c) The script or SP can be tuned so that it consumes fewer database resources.

16.1.9 Access on <UNKNOWN> in NONABAP



Statement Data:

Cache Statistics

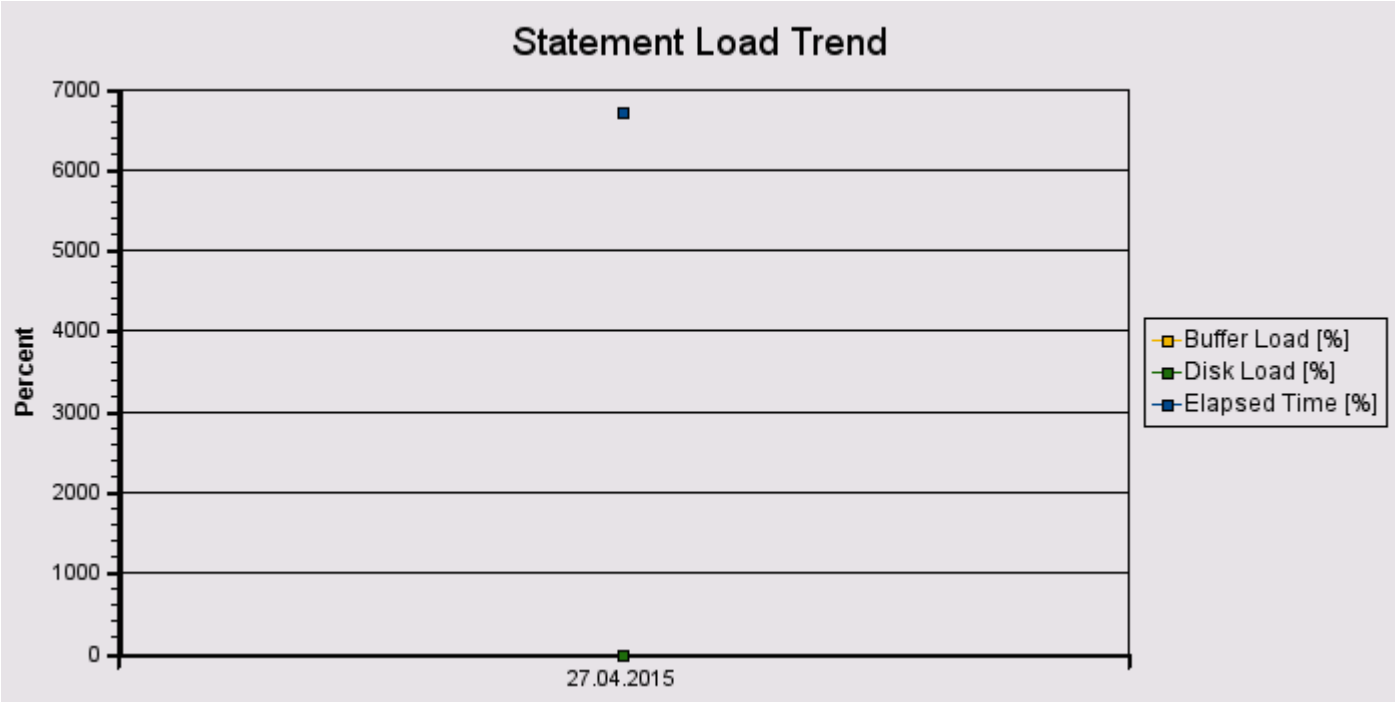
Object type	Total execution s	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	6718	197157	0,04	832	1

```
UPDATE #perfinfo SET norm_value = 0
WHERE
norm_value IS NULL
```

Execution Plan

No explain

16.1.10 Access on <UNKNOWN> in NONABAP



Statement Data:

Cache Statistics

Object type	Total execution s	Total elapsed time[ms]	Elapsed time[ms]/Record	Records/Execution	Estimated Records/Execution
TABLE	6717	206932	0,04	819	1

```
UPDATE #perfinfo SET norm_value = 0
WHERE
norm_value IS NULL
```

Execution Plan

No explain

17 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.

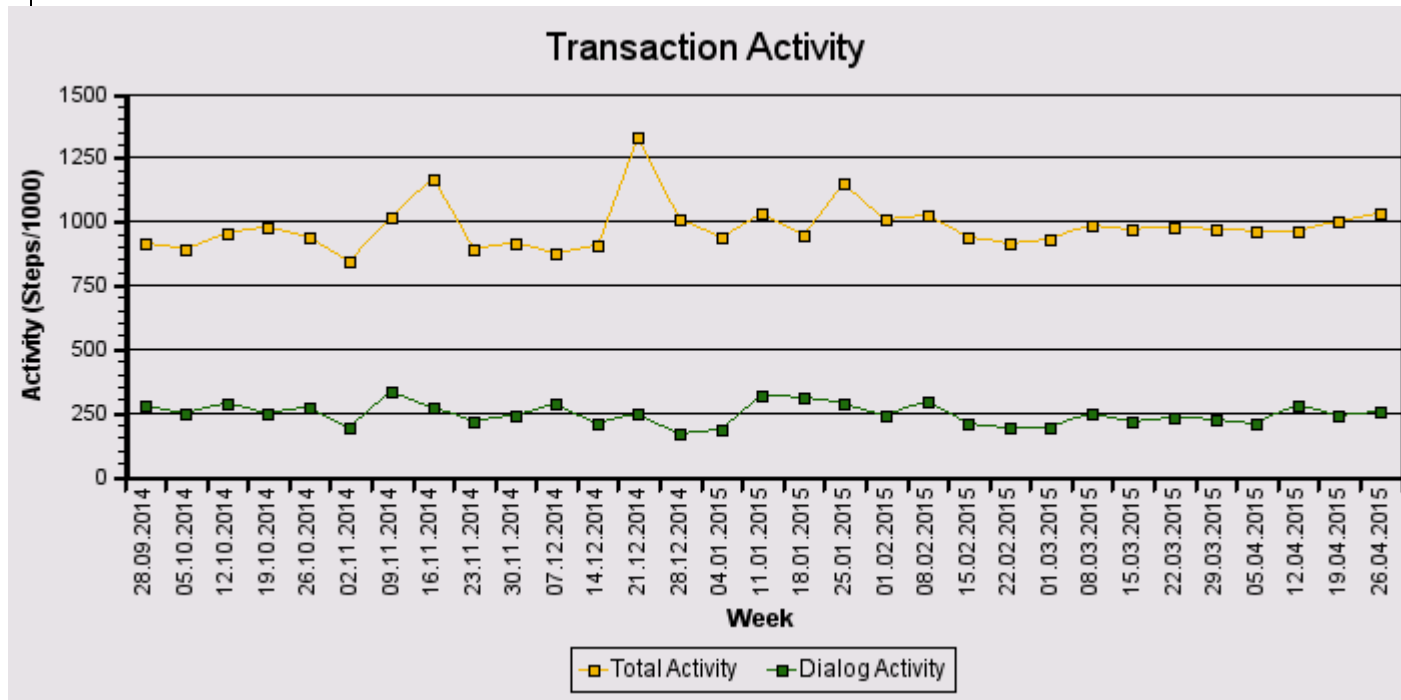
17.1 System Activity

The following diagrams show the system activity over time.

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

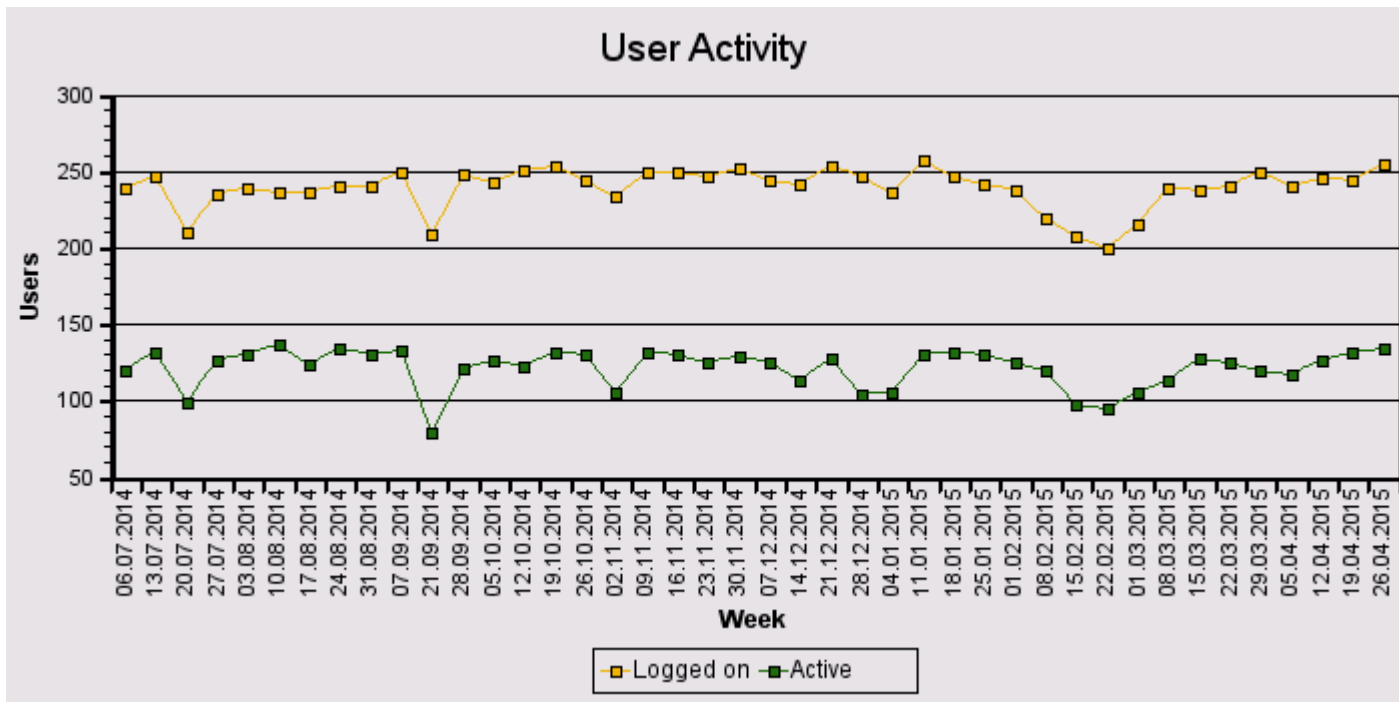
- **Total Activity:** Transaction steps performed each week (in thousands)
- **Dialog Activity:** Transaction steps performed in dialog task each week (in thousands)
- **Peak Activity:** Transaction steps (in thousands) during the peak hour; this peak hour is calculated as the hour with the maximum dialog 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.

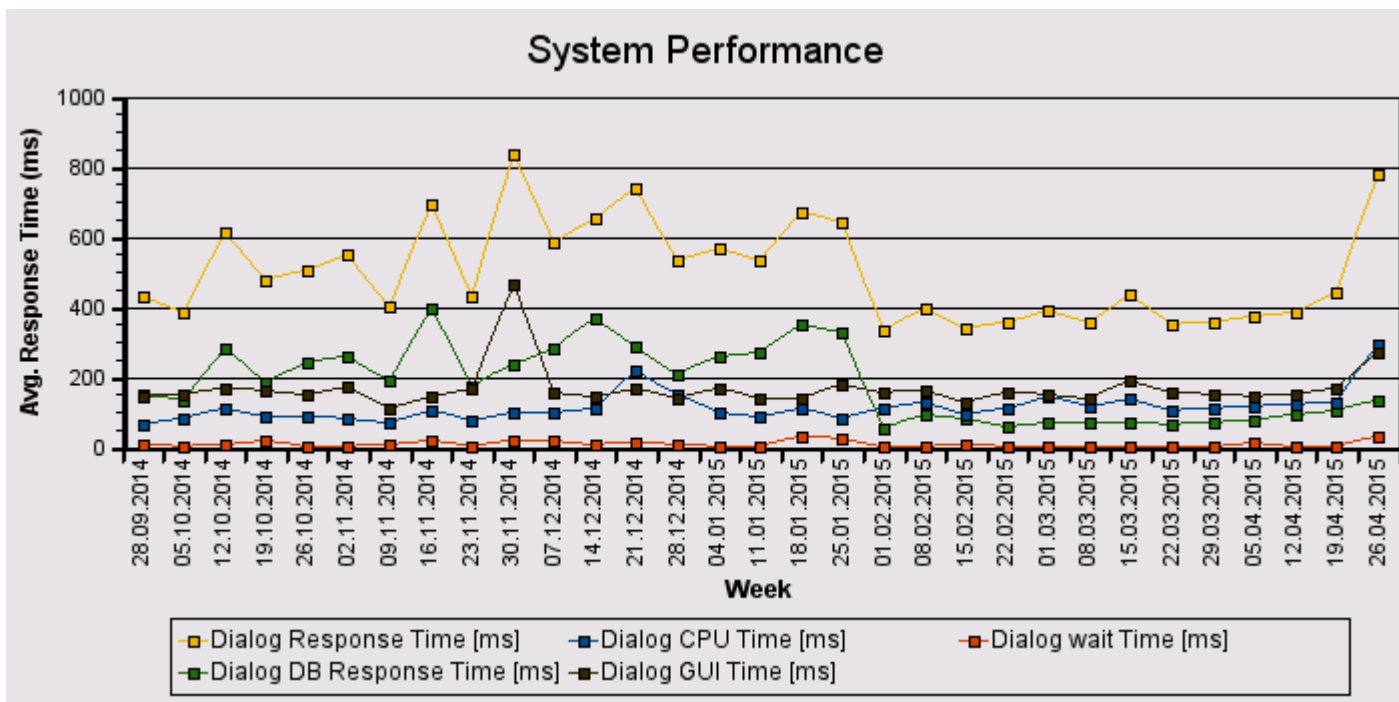
- **Total Users:** Total users that logged on in one week.
- **Active Users:** Users who performed more than 400 transaction steps in one week.



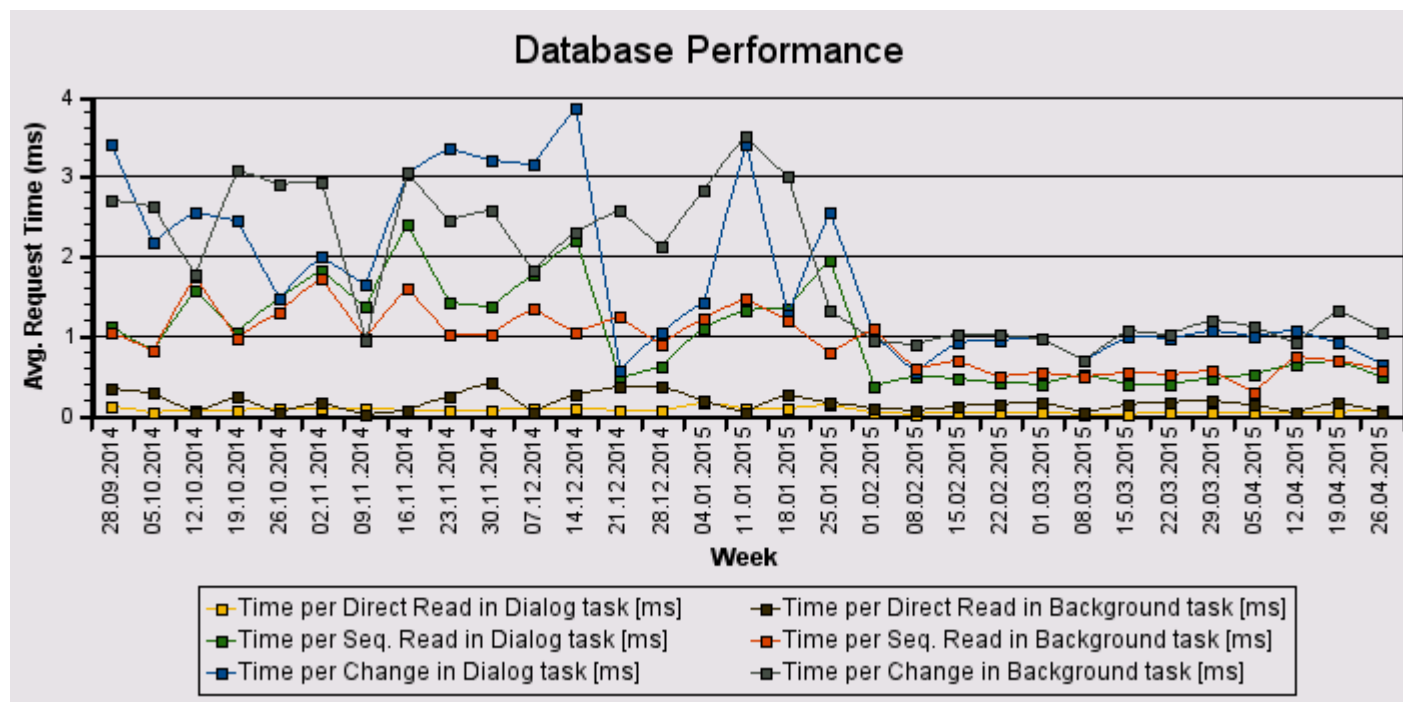
17.2 Response Times

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

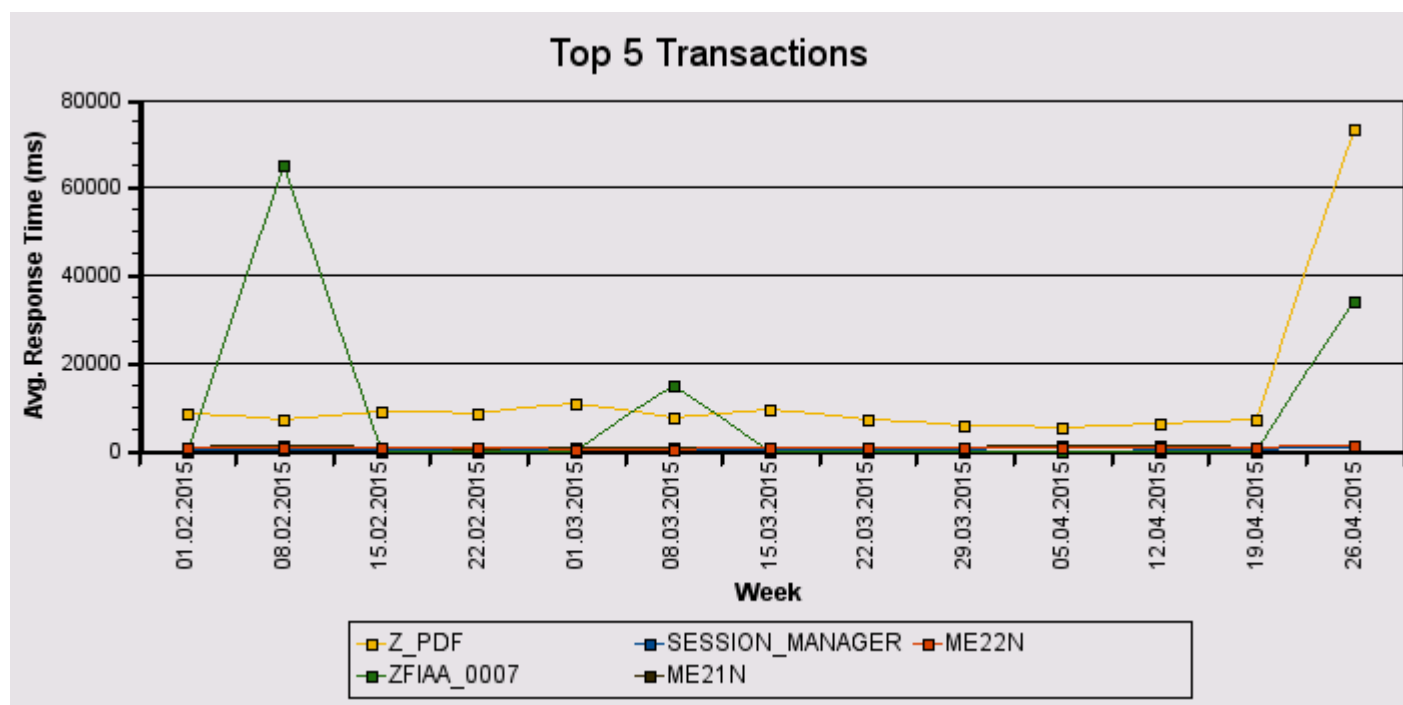
The "System Performance" diagram below shows the average response time in dialog tasks for the previous week.



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



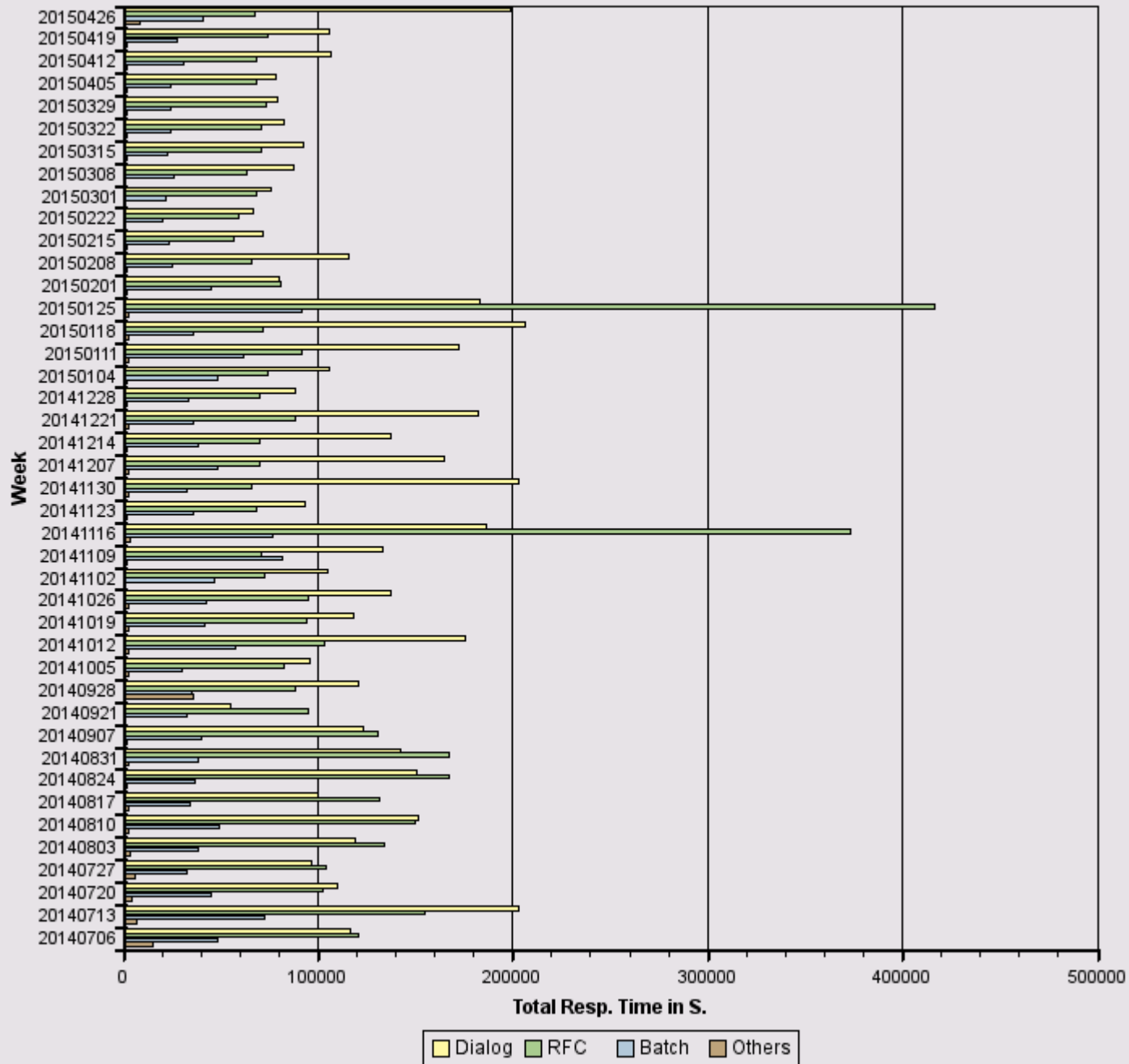
The "Top 5 transactions" diagram below shows the average response time in dialog tasks for the top 5 transactions.

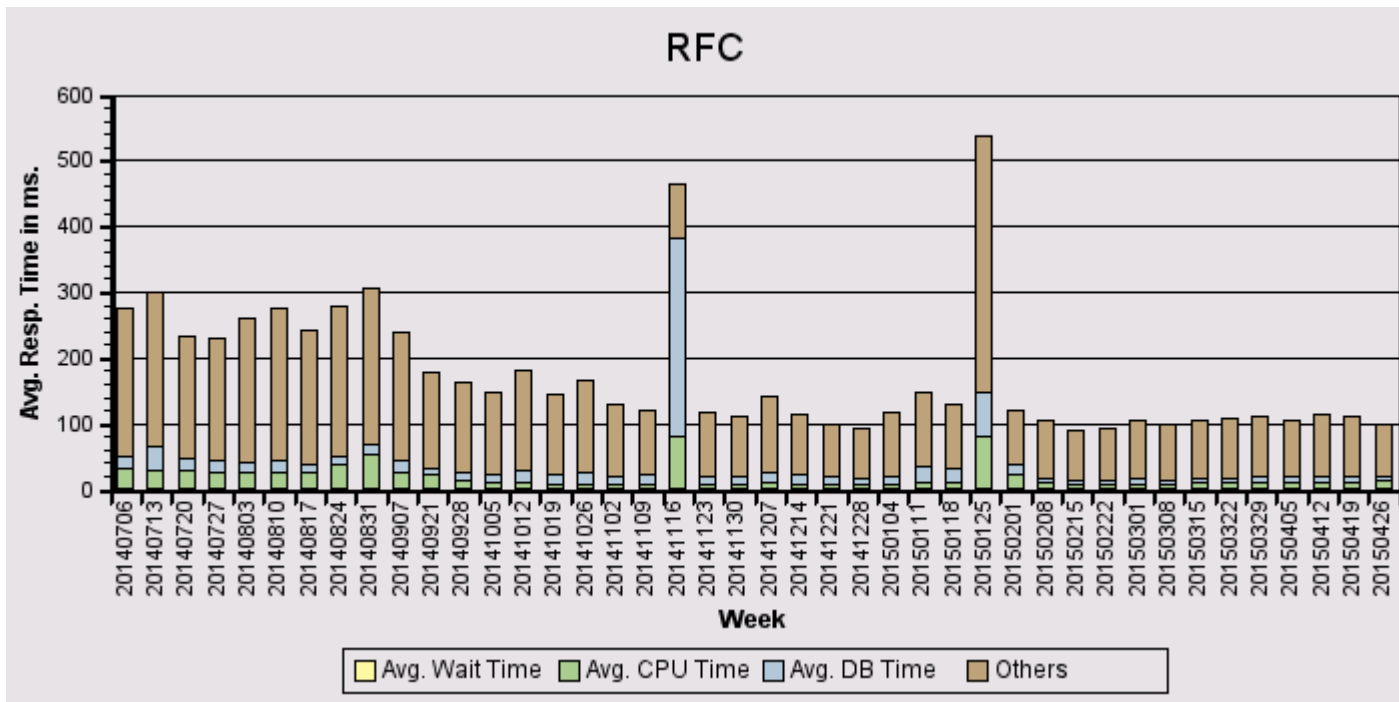


The "Transaction Code" table below shows the load percentage caused by the top 5 transactions.

Transaction Code	Load (%)
Z_PDF	31,2
ZFIAA_0007	5,0
SESSION_MANAGER	4,9
ME21N	3,3
ME22N	3,1

Workload Profile of Top 3 Task Types





17.3 Application profile

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

Short term: From calendar week 13/2015 to 16/2015

Long term: From calendar week 05/2015 to 16/2015

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

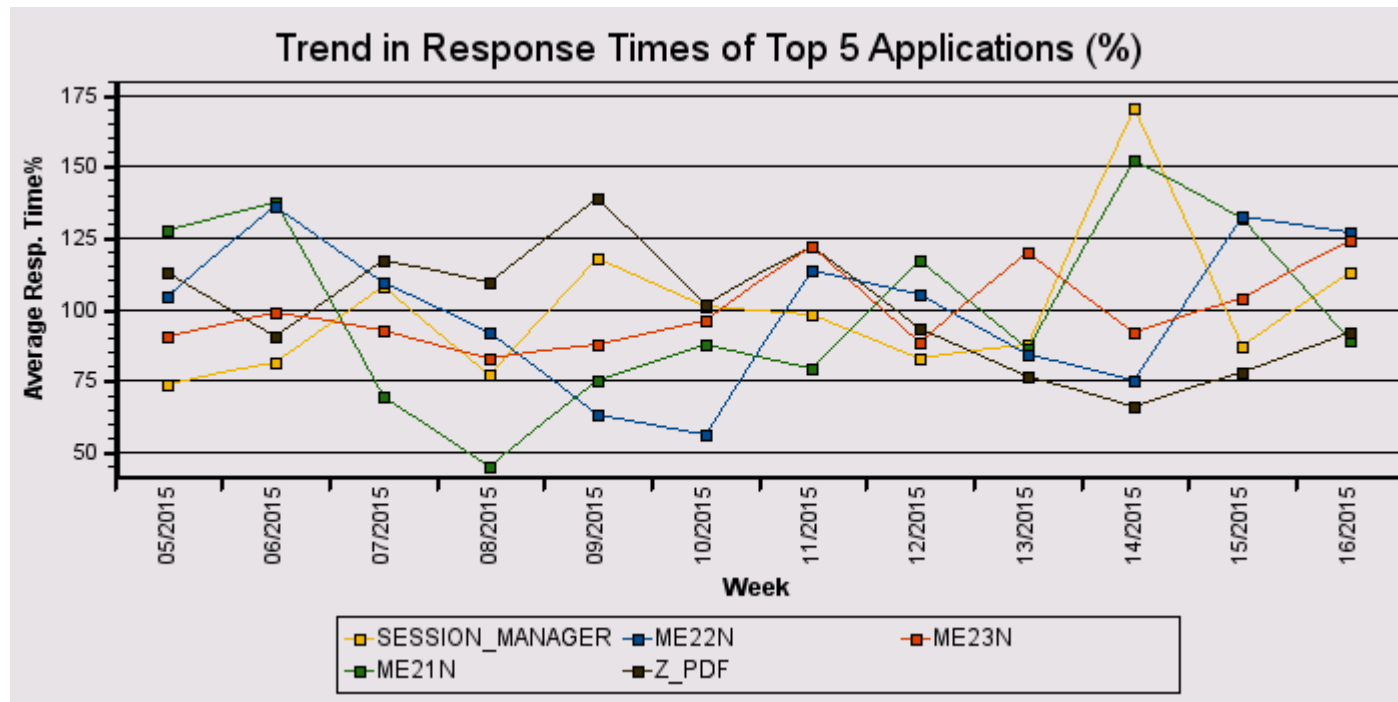
Top Applications by Response Time

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	SESSION_MANAGER	56507	5	322	57,3	24,9-	29	36
Dialog	ME21N	52832	5	718	28,1	36,4-	29	76
Dialog	ME22N	45804	4	596	7,6	699,3	44	155
Dialog	Z_PDF	40791	4	7567	63,6-	281,5	14	71
Dialog	ME23N	38932	4	192	41,4	75,7	24	66
Dialog	S_ALR_87011990	36871	4	4807	217,9-	4.829,4	2568	1769
Dialog	ZMM_PLANCPA	33362	3	1359	254,7-	459,1	426	385
Dialog	FAGLB03	30066	3	411	49,2	277,3-	101	148
Dialog	ME53N	27012	3	253	13,8-	87,1	23	93

Top Applications by Response Time

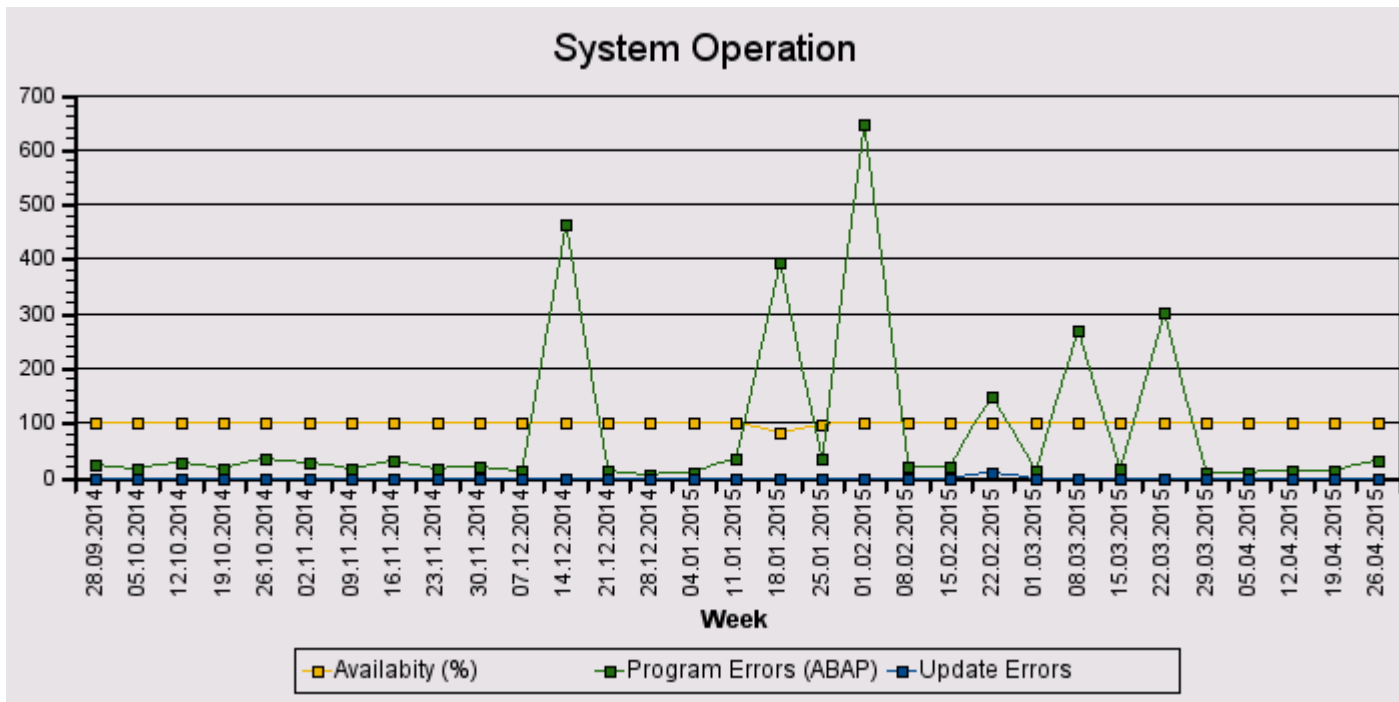
Task Type	Application	Total Resp. Time in s	% of Total Load	Avg. Resp. Time in ms	Long Term Growth (%/year)	Short Term Growth (%/year)	Avg. DB Time in ms	Avg. CPU Time in ms
Dialog	FBL1N	24123	2	147	26,3-	505,4	29	74
Dialog	ME5A	24087	2	1174	20,5-	614,3	48	634
Dialog	ME51N	22624	2	467	102,4	206,8-	16	86
Dialog	ZFIGL_0002	21177	2	3948	5,0-	313,4-	136	986
Dialog	ZFI_REP_GAR	21174	2	3928	76,1	425,7-	579	1731
Dialog	S_ALR_87013611	19434	2	1650	1,3	57,4	196	699
Dialog	ZMM_0041	19343	2	2049	68,9	21,0	412	1426
Dialog	ME2L	18681	2	1039	90,7	132,8	377	597
Dialog	LX02	17792	2	198	54,8	1.115,8	47	88
Dialog	STMS	17054	2	4164	39,4	242,2	57	487
Dialog	MB51	16320	2	709	6,6-	111,8	91	412

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.



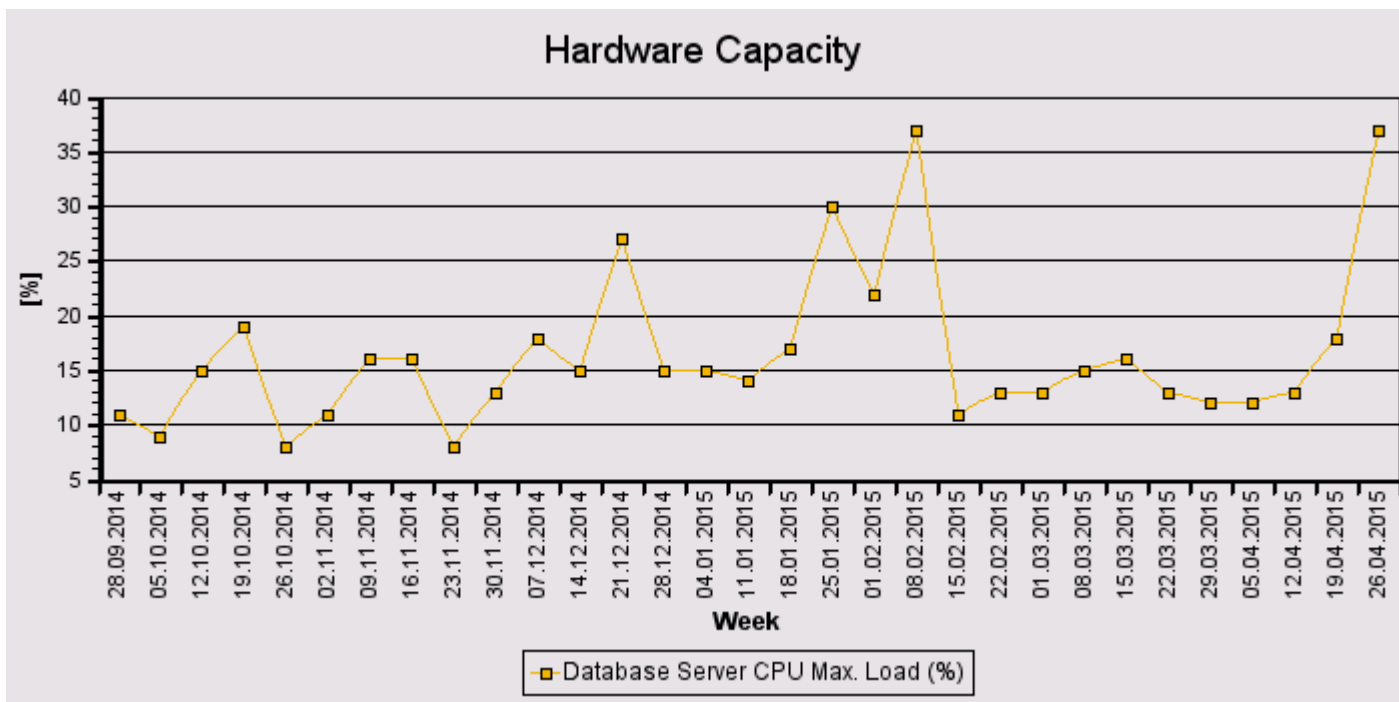
17.4 System Operation

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



17.5 Hardware Capacity

The following diagram or table shows the maximum CPU load from the database server and all application servers.



Report time frame: Service data was collected starting at 27.04.2015 04:47:48. This took 7 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](#).

