

DBPLUS
better performance

A man with a beard, seen from the side, is looking at a large monitor in a server room. The monitor displays a close-up view of server racks filled with various hardware components. The man is wearing a dark blue long-sleeved shirt and is standing at a desk with a keyboard. The server room has multiple racks of servers, some with red indicator lights. The overall scene is dimly lit, with light coming from the server racks and the monitor.

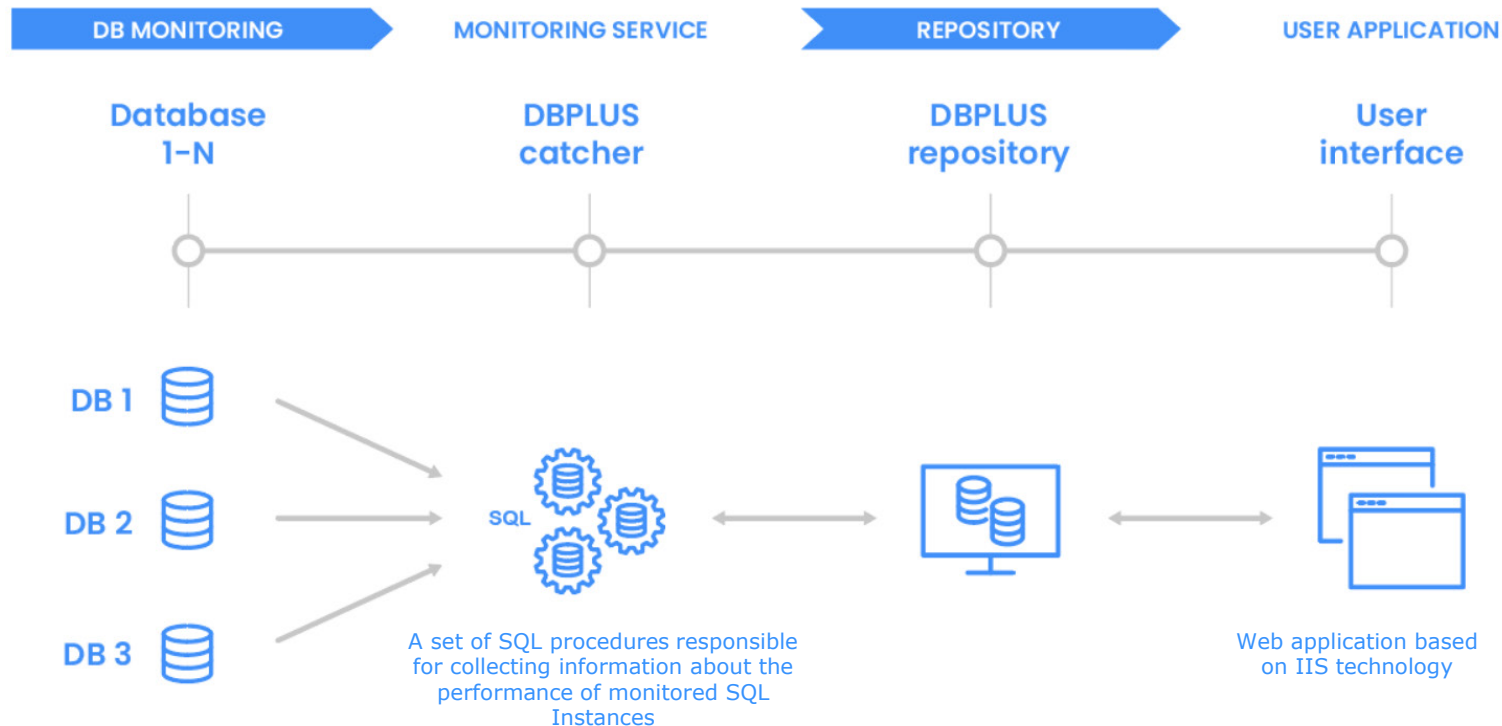
Performance Monitor for Microsoft SQL Server

Agenda

1. Solution architecture
2. Connecting the database to monitoring
3. Main functionalities
4. Access management - Security module
5. Anomaly Monitor
6. Working with the program

System architecture

DBPLUS
better performance



Connecting the database to monitoring

In the main system configurator window (Configuration Wizard), click the [\[Add Another instance\]](#) button.

Two ways to connect the database:

- [Manual connection \(single\)](#)
- [Import from file](#)

DBPLUS Performance Monitor for MSSQL - system configurator

System architecture
List of DPM components and its availability and activity

Version: 2018.4.2
License Information

Monitored SQL Instances	Monitoring service	Database repository	User application
✓ 6 instances (from 13)	✓ Configured successfully	✓ Configured successfully	✓ Configured successfully
WIN-PVM04LTCT8A\EVAL_ORNG PVM04LTCT8A\INSTANCIA_2005_2 PVM04LTCT8A\INSTANCIA_2012_1 PVM04LTCT8A\INSTANCIA_2012_2 PVM04LTCT8A\INSTANCIA_2012_2 WIN-PVM04LTCT8A\INSTANCIA_2014 I-PVM04LTCT8A\PD_WAREHOUSE WIN-PVM04LTCT8A\SQLXPRESS PVM04LTCT8A\SQLXPRESS2008 PVM04LTCT8A\SQLXPRESS2012 WTD8PLD2	 DBPLUS Catcher Status: ● Running	 Server: .\sqlexpress2012 Database: [DBPLUS_WEB]	 IIS Service Status: ● Running
			 Application: ● Installed Website: ● running App pool: ● running http://WIN-PVM04LTCT8A/DPM

[Add another instance](#) [Service settings](#) [Repository settings](#) [Application settings](#)

Please click on the system. The wizard will help you to configure the system.

Add another sql instance

Import sql instances from file

DBPLUS Performance Monitor for MSSQL - system configurator

DBPLUS Performance Monitor for MSSQL - system configurator

Refresh Configuration Wizard

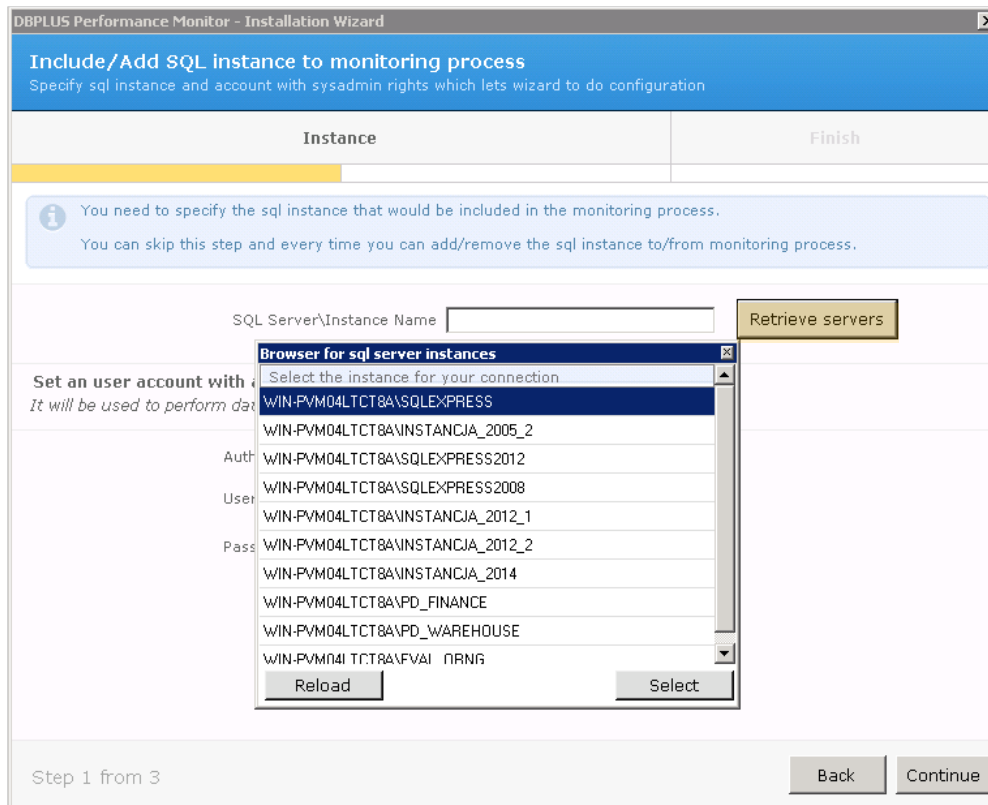
Connecting the database to monitoring

Adding a single database:

- Select the instance name.

Attention!

You can download the list of servers automatically by pressing [Retrieve servers] and selecting instances from the list.



Connecting the database to monitoring

Adding a single database:

- Select an account with administrator rights.
- You can choose to use your Windows account or an SQL Server account.

DBPLUS Performance Monitor - Installation Wizard

Include/Add SQL instance to monitoring process
Specify sql instance and account with sysadmin rights which lets wizard to do configuration

Instance Finish

*You need to specify the sql instance that would be included in the monitoring process.
You can skip this step and every time you can add/remove the sql instance to/from monitoring process.*

SQL Server\Instance Name: WIN-PVM04LTCT8A\INSTANCJA_2C Retrieve servers

Set an user account with administrator/sysadmin rights.
It will be used to perform database installation on selected instance

Authentication: SQL Server Authentication
Username: SQL Server Authentication
Password:

Test credentials Connection properties

Step 1 from 3 Back Continue

Connecting the database to monitoring

Adding a single database:

- Check the checkbox if a new user will be created, or leave it unchecked if an existing user based on DBPLUS will be used.

DBPLUS Performance Monitor - Installation Wizard

Include/Add SQL instance to monitoring process
Specify login account which will be used by DBPLUSCATCHER service to run monitoring process on selected instance

Instance **Finish**

Information
You need to specify the login which will be used for connection purposes by DBPLUSCATCHER service.
We strongly recommend to create new user and not use an account with sysadmin privileges.
For specified login and its users would be set following options:
- grant rights to executes system procedures or read system views on the monitored sql instance

Create new login/user

Authentication: SQL authentication
User name: dbplusweb
Password:

Use existing login

☐ Use existing user
User name: dbplus
Password:

Test credentials

Step 2 from 3 Back Continue

Connecting the database to monitoring

Import an instance of SQL from a file:

File structure:

- SERVERNAME,TCPPORT,DBPLUS_USERNAME,DBPLUS_PASSWORD,SYSADMIN_USERNAME,SYSADMIN_PASSWORD[,SERVER_TYPE_NAME]

Sample file:

- maqch\sqlexpress,1438,db_mon987,db_mon987,maqch\radoslaw,admin,TEMPORARY

Attention!

In the case of the SYSADMIN user, the login and password can be left blank. The installation will be done in the context of the currently logged-in user.

Import SQL Instances form

DBPLUS Performance Monitor for MSSQL
Import instances to monitoring list

Please select a file to import sql instances connection details and include them in monitoring process. You can use csv file containing following columns: SERVERNAME, TCPPORT, DBPLUS_USERNAME, DBPLUS_PASSWORD, SYSADMIN_USERNAME, SYSADMIN_PASSWORD [,SERVER TYPE NAME]. File should be without header and with comma separator. For domain username, PLEASE USE EMPTY PASSWORD. IF SYSADMIN user is not specified, then system will do the steps in context of currently logon user.

Select a file

File for import:

Option

☒ Create DBPLUS login/users if not exists ☒ Enable [OLE Automation] module to monitor disk spaces usage

☒ Add ddl_admin role to the dbplus user to view statistics ☒ Enable a job responsible for creating/updating DBPLUS user

Marked For Import	Server Name	DBPLUS Username	DBPLUS Password	Create DBPLUS user	SYSADMIN Username	SYSADMIN Password	Database
<input checked="" type="checkbox"/>	maqch\sqlexp...	db_mon987	db_mon987	<input type="checkbox"/>	maqch\radosl...		master
<input type="checkbox"/>	maqch\sqlexp...	db_mon987	db_mon987	<input type="checkbox"/>	maqch\radosl...		master

Main functionalities - Table options

- It is possible to export data to a CSV file

SQL STATEMENTS EXECUTED DURING SPECIFIED PERIOD TIME

Search query by any value in below snapshot table

Database	Query text	Query Hash	Plan Hash	Use plan guide	Elapsed Time [Seconds]	Cpu Time [Seconds]	Io, Wait Time [Seconds]	Time per 1 exec [Seconds]	Executions	Disk reads [Blocks]	Buffer gets [Blocks]	Buffer writes [Blocks]	Rows processed
IT	INSERT INTO #sprzedaz (misc_id, pl_sq	0xCF9D450E947/ 0xA6217521A		<input type="checkbox"/>	4 802.85	4 628.96	173.90	1.7580	2 732	685 006	815 379 513	93	50 439
IT	SELECT SUM(case when s.sprz_wew =	0x940E97FD6072/ 0x1FE5A4EC		<input type="checkbox"/>	983.96	3 648.51	0	5.9998	164	335 346	2 531 068 131	12	954
IT	INSERT INTO CRM_tel_do_exp (KH_KC	0x92D1F0FAEE4/ 0x57E516FC5		<input type="checkbox"/>	3 937.44	3 127.41	810.02	787.4870	5	8 324	122 875 133	10 841	54 455
IT	SELECT *, case when r.Potencjal <> ?	0x24CADA37134/ 0xB76DE911C		<input type="checkbox"/>	2 458.70	2 169.83	268.87	15.8626	155	1 085 604	304 839 512	34	3 275
IT	select distinct tok_kod from [IT].[CRM]	0x5C00E0B7717/ 0x9C0FC367E		<input type="checkbox"/>	2 084.26	1 710.15	374.10	12.6318	165	1 574 922	339 243 835	0	95
IT	INSERT INTO #zakupy (misc_id, pl_sq	0x36C4AADC065/ 0xCA8E0E05C		<input type="checkbox"/>	1 727.64	1 701.89	25		2 731	76 992	419 694 436	13	41 763
IT	INSERT INTO [WRK].[sprz_tmp_01_PL]	0x28E5F68B3FAE/ 0x5123EF329		<input type="checkbox"/>	1 920.37	1 626.75	293		2	71 680	58 321 517	720 931	11 340 543
IT	select distinct tok_kod from [IT].[CRM]	0x1C513772D226/ 0x9C0FC367E		<input type="checkbox"/>	1 695.69	1 394.66	301		106	2 548 293	217 966 219	4	63
IT	INSERT INTO CRM_um_bp_srednia_def	0x244434054D04/ 0x71D72579C		<input type="checkbox"/>	1 370.45	1 347.51	22.94	1.370.4546	1	44 004	5 405 506	44 563	1 363 761
IT	SELECT @sprzedaz_wykonana_PL = S	0x5427390EF487/ 0xE25656519		<input type="checkbox"/>	324.91	1 105.54	0	0.4451	730	506 261	152 499 715	0	726

Sorting and Formatting columns in tables:

- unit selection** - e.g. Elapsed Time in seconds, minutes, days, etc.,
- selection of a shortcut for large numbers** - e.g. kilo, Mega, ...
- determination of decimal place accuracy** of a number

Elapsed Time	Cpu Time	Time per 1 exec	Sorts	Fetches
[Seconds]				
1 824.7				
13.3				
7.2				
5.4				
4.1				
2.4				

Elapsed Time column properties

Time format: Seconds

Number format: Seconds

Precision: HH:MM:SS

Apply

Buffer gets	Rows processed	Latches	Waits
[M Blocks]	[Rows]	[Seconds]	[Seconds]
32.833 M			
4.455 M			
0.836 M			
0.817 M			
0.708 M			
0.657 M			

Buffer gets column properties

Units format: Blocks

Number format: Mega

Precision: 3

Restore defaults

Apply

Main functionalities - Table options

- The **[+]** button is presented in the Query Hash column
- It allows you to quickly go to query details ([SQL Details](#)) or
- To add a query to the clipboard with a list of queries for later analysis ([SQL Details](#))

Database ▲	Query text	Query Hash	Plan Hash	Use plan guide	Elapsed Time [Seconds]	Cpu Time [Seconds]
IT	select distinct lok_kod from [IT].[CRM].[v	0x1C513772D2280FFA	0x9C0FC36787A5B452	<input type="checkbox"/>	1 695.69	1 394.66
IT	INSERT INTO CRM.um_bp_srednia_def	0x244434054DD428C5	0x71D72579CFA8797C	<input type="checkbox"/>	1 370.45	1 347.51
IT	SELECT *, case when r.Potencjal <=> ? a	0x24CADA37134D6659	0xB76DE911DBF81C26	<input type="checkbox"/>	2 458.70	2 169.83
IT	INSERT INTO [WRK].[sprz_tmp_01_PL]	0x28E5F68B3FAB3453	0x5123EF3299FEF717	<input type="checkbox"/>	1 920.37	1 626.75
IT	INSERT INTO #zakupy (msc_id, pl_sp,	0x36C4AADCD6513A98	0x36C4AADCD6513A98	<input type="checkbox"/>	1 727.64	1 701.89
IT	SELECT @sprzedaz_wykonana_PL = S	0x5427390EF49767AC	0x5427390EF49767AC	<input type="checkbox"/>	324.91	1 105.54
IT	select distinct lok_kod from [IT].[CRM].[v	0x5C00E0B771731CDE	0x5C00E0B771731CDE	<input type="checkbox"/>	2 084.26	1 710.15
IT	INSERT INTO CRM.tel_do_exp (KH_KO	0x92D1F0FAEE4C6039	0x92D1F0FAEE4C6039	<input type="checkbox"/>	3 937.44	3 127.41
IT	SELECT SUM(case when s.sprz_wew =	0x940E97FD60723258	0x1FE5A4EC79CD59E2	<input type="checkbox"/>	983.96	3 648.51
IT	INSERT INTO #sprzedaz (msc_id, pl_sp	0xCF9D450E947A1DCF	0xA6217521A60841EB	<input type="checkbox"/>	4 802.85	4 628.96

Click on query hash to analyze Query Performance Details

▲ Query Hashes list

0xFEE5B3F6329E6C88

0x6E736B9D57E5A96B

0x788D41A0579D4658

0x36C4AADCD6513A98

0x28E5F68B3FAB3453

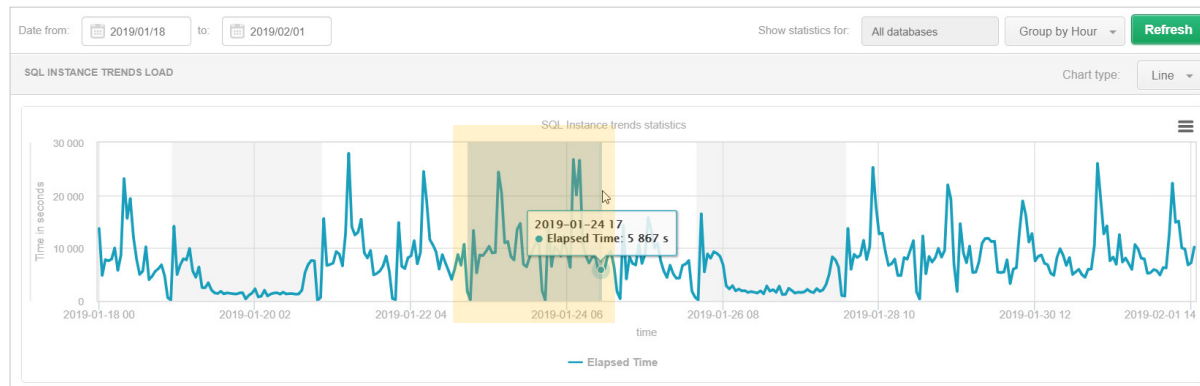
0x1C513772D2280FFA

0xCF9D450E947A1DCF

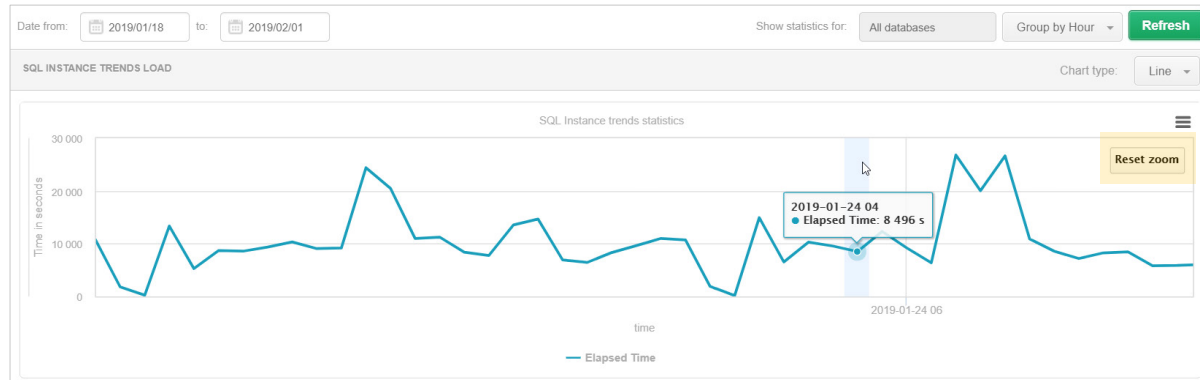
Clear list

Main functionalities - Chart options

- Zooming in the selected area on the chart



- Option to return to the previous view via [\[Reset zoom\]](#)



Main functionalities - Chart options

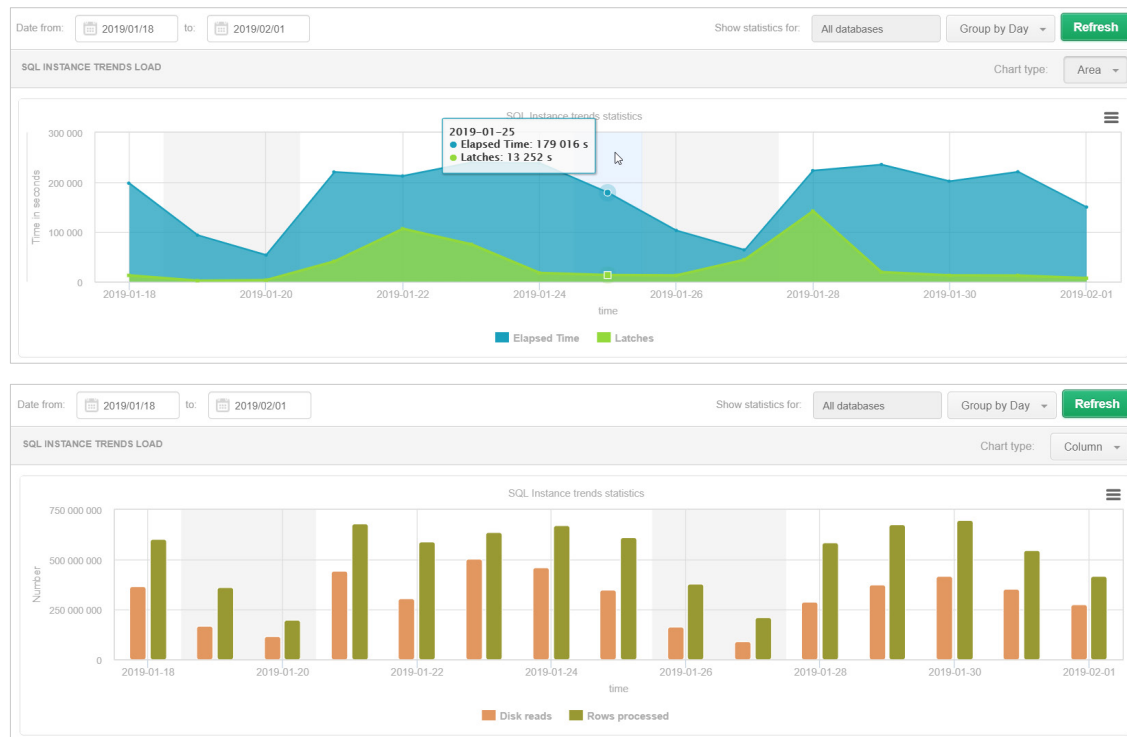
Different types of charts:

- *Line*
- *Area*
- *Column*

It is possible to mark and unmark the presented series on the chart

Displaying information in a *Tooltip* after indicating the location on the chart.

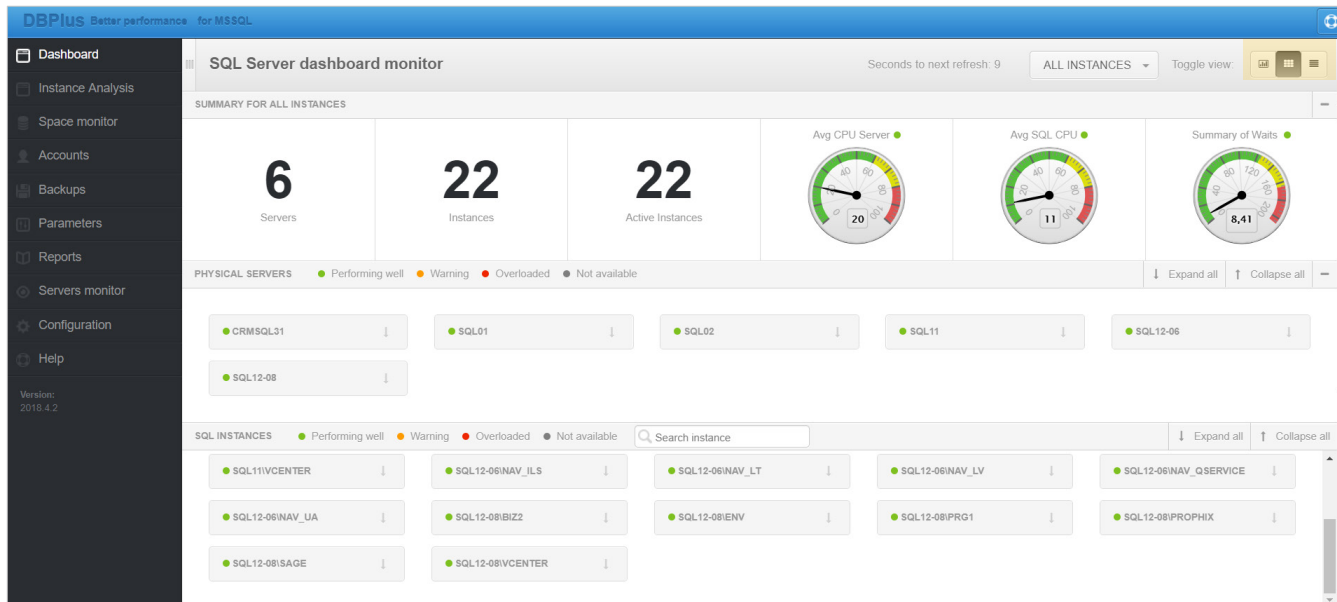
The chart can be exported to a file in the following formats: *PNG*, *JPEG*, *PDF*, *SVG*.



Dashboard - Home screen

Three different ways
of presenting
databases:

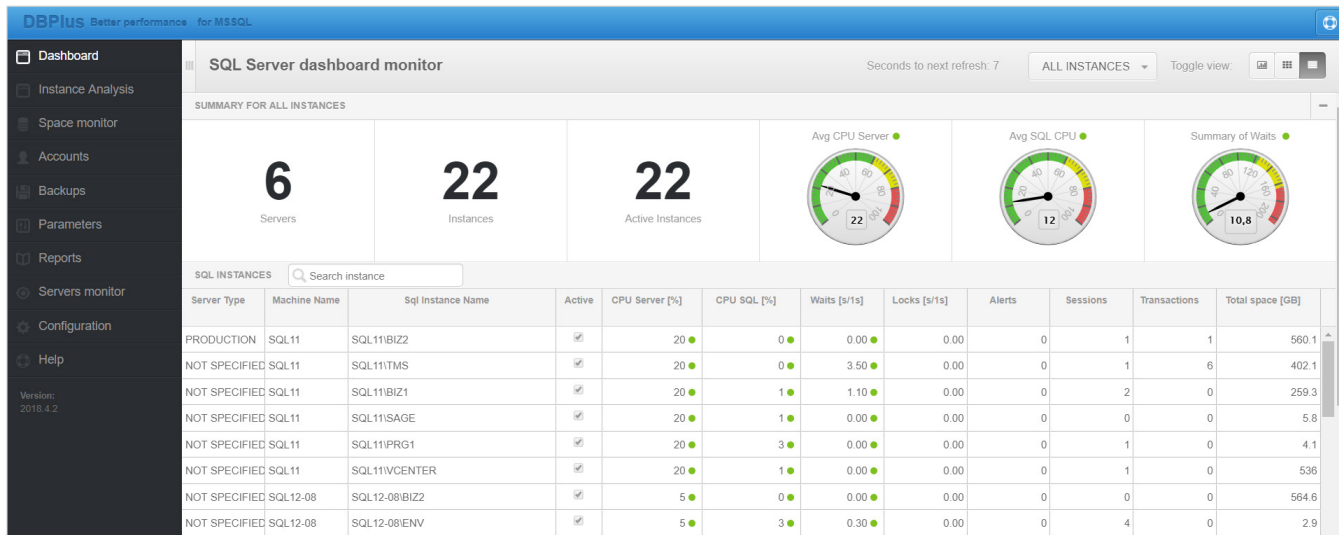
- *Icons view*



Dashboard - Home screen

Three different ways
of presenting
databases:

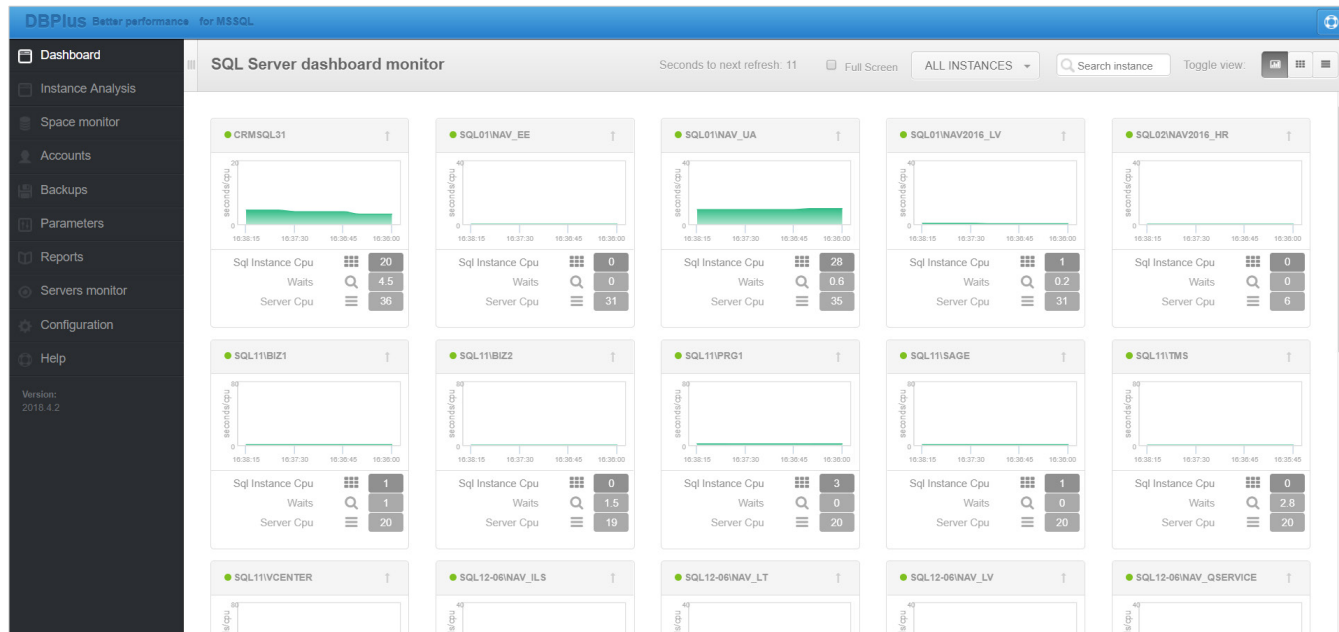
- *Grid view*



Dashboard - Home screen

Three different ways
of presenting
databases:

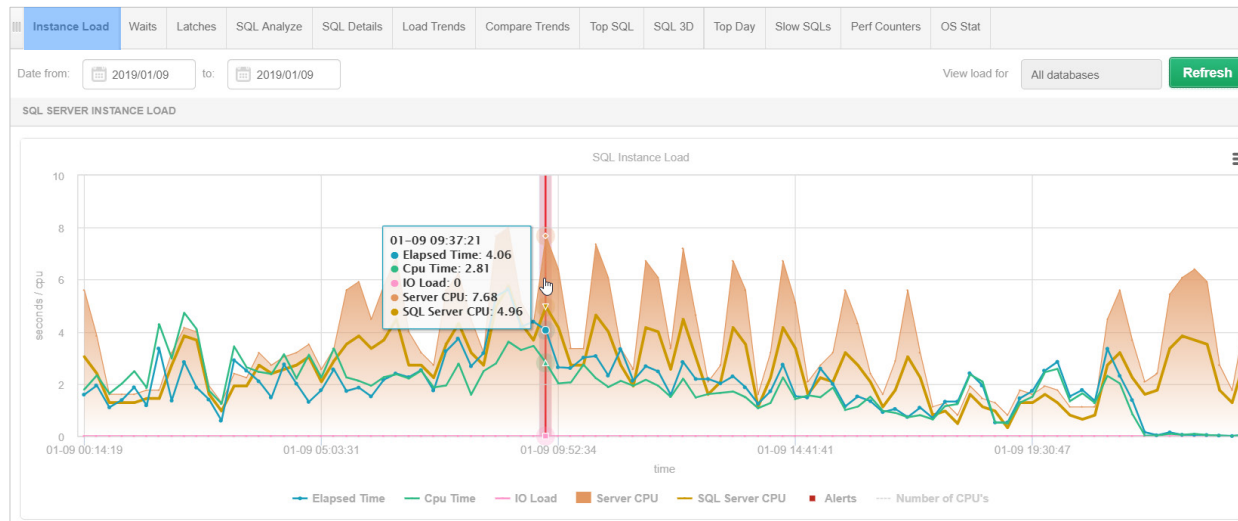
- *Television view*



Instance Load - details of the SQL instance

The chart presents information about the basic statistics of the database:

- *Elapsed Time*
- *CPU Time*
- *IO, Lock, Wait Time*
- *Server CPU*
- *Alerts*
- *CPU Usage*



Instance Load - details of the SQL instance

After clicking on a point on the chart, you can find information about:

- Queries run in a given time period along with their statistics

Sql Statements

Waits

Databases Load

Alerts

Statements filter:

Top 20 statements by CPU

SNAPSHOT OF SQL STATEMENTS EXECUTED WITHIN 15 MINUTES AT 2019-01-21 14:34:33

Search query by any value in below snapshot table

Database	Query text	Query Hash	Plan Hash	Use plan guide	Elapsed Time	Cpu Time	Time per 1 exec	Executions	Disk reads	Buffer gets	Buffer writes	Rows processed	Elapsed Time Load	Cpu Time Load
					[Seconds]	[Seconds]	[Seconds]		[Blocks]	[Blocks]	[Blocks]		[%]	[%]
IT	SELECT s.rok, s.miesiac, d.dynamika, si	0x8C5C657C37D	0x889E34F8E		208.65	175.30	13.0405	16	1 359	22 490 525	27	322	11	11
IT	select distinct lok_kod from [IT].[CRM].[v	0xBF5352BFA4	0x9C0FC3676		71.28	59.07	17.8195	4	266	8 116 100	0	4	4	4
IT	SELECT s.rok, s.miesiac, d.dynamika, si	0x8C5C657C37D	0xE8E2B2CA		72.59	54.15	14.5172	5	9	6 943 914	0	49	4	3
IT	SELECT kh_kod, sum(wartosc_w_pln) w	0x5F1572100C99	0x41403B1BB		49.51	49.45	2.0629	24	9	172	0	19	3	3
IT	SELECT *, case when r.Potencjal <> ? a	0x24CADA37134	0xB76DE911C		56.13	45.39	18.7093	3	84	6 074 162	0	81	3	3
IT	SELECT SUM(case when s.sprz_wew =	0x940E97FD6072	0x1FE5A4EC		7.85	30.76	7.8516	1	0	16 929 468	0	0	0	2

STATEMENT TEXT FOR QUERY HASH: 0X8C5C657C37DD565D

SELECT s.rok, s.miesiac, d.dynamika, sum(s.przychod_netto) sprz_netto, sum(CASE WHEN s.internet = ? THEN s.przychod_netto ELSE ? END)/NULLIF(sum(s.przychod_netto), ?) * ? internet_procent, sum(CASE WHEN s.zwroty_netto > = ? THEN ? ELSE s.zwroty_netto END) / NULLIF(sum((s.przychod_netto-s.zwroty_netto) / -?), ?) zwrot_proc, case when sum(Abs(s.zwroty_netto)) > = sum(s.przychod_netto) OR sum(s.przychod_netto) < ? then ? else ? end as zwrot_proc100 FROM CRM.SPRZEDA2_FAKTY_R2B s inner join InterCars_MSCRM.dbo.FilteredAccount k on k.accountnumber = s.kh_kod inner join CRM.DynamikaAVG d on d.rok_miesiac = s.rok_miesiac inner join InterCars_MSCRM.dbo.FilteredCustomerHistory h on h.CustomerHistoryId = s.sprz_wew and s.rok_miesiac = h.rok_miesiac and s.kh_kod = h.kh_kod

EXPLAIN PLAN FOR PLAN HASH: 0X889E34F8E9719820

Show plan objects for 0x889E34F8E9719820

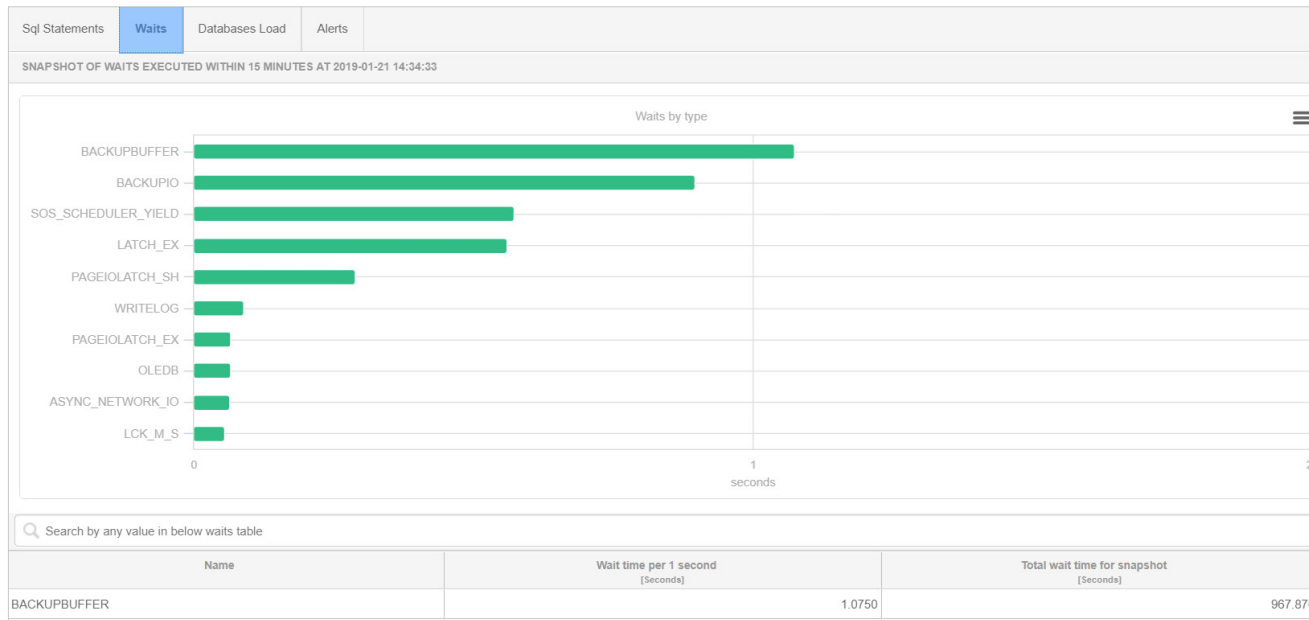
Databases: IT, InterCars_MSCRM

Missing indexes

Instance Load - details of the SQL instance

After clicking on a point on the chart, you can find information about:

- The level of individual waits



Instance Load - details of the SQL instance

After clicking on a point on the chart, you can find information about:





- Load of a particular database on the SQL instance



Instance Load - details of the SQL instance

After clicking on a point on the chart, you can find information about:

- Alerts (if any)

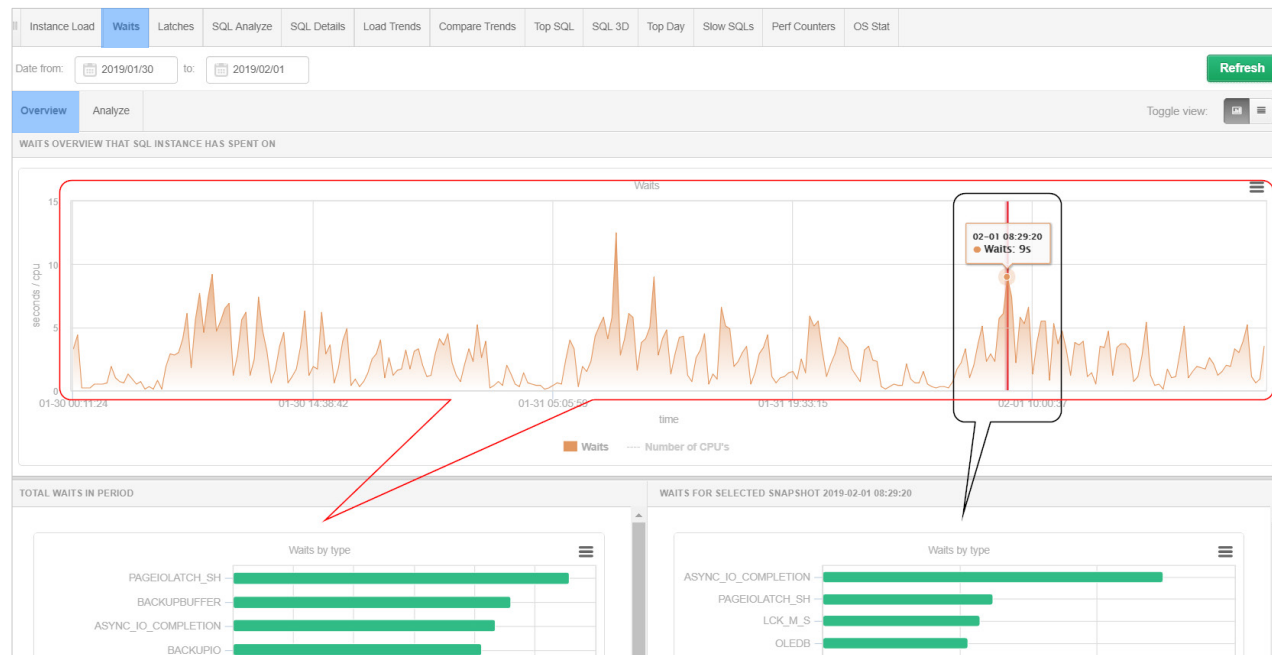
Sql Statements	Waits	Databases Load	Alerts
SNAPSHOT OF ALERTS GENERETED WITHIN 15 MINUTES AT 2019-02-01 14:22:27			
Logdate	Reason name		
2019-02-01 14:22:15	Problems couose New query		
	New Statement Cpu Time	Alert Type: Sql Query, Statement query hash: 0xFBFEADFF47FA04B6  , Statistics: New Statement Cpu Time, Last value: 417.4 , The measured statistic value has 79.7 % of instance load	
	New Statement Elapsed Time	Alert Type: Sql Query, Statement query hash: 0xFBFEADFF47FA04B6  , Statistics: New Statement Elapsed Time, Last value: 477.9 , The measured statistic value has 79.1 % of instance load	
2019-02-01 14:22:15	Problems with Query CPU Time Increase couose query change plan		
	Cpu Time per 1 exec	Alert Type: Sql Query, The measured statistic value is 109.4 times higher than allowed maximum , Statement query hash: 0x4C49D9E6EB6CB6E4  , Statistics: Cpu Time per 1 exec, Last value: 50.1 s, History value: 0.4538 s , Faster plan found: 0x47E36651B886E684 , actual plan: 0xEC0777B3D1DFAA25. Statistic difference: 0.2872 vs. 50.1 s	
	Cpu Time	Alert Type: Sql Query, The measured statistic value is 164.6 times higher than allowed maximum , Statement query hash: 0x4C49D9E6EB6CB6E4  , Statistics: Cpu Time, Last value: 50.1 s, History value: 0.3025 s , Faster plan found: 0x47E36651B886E684 , actual plan: 0xEC0777B3D1DFAA25. Statistic difference: 0.2872 vs. 50.1 s	

Waits Overview

The graph shows the total wait time for all sessions in the SQL instance in a given time period.

The graph on the left shows the sum of wait times for the *selected period*.

The graph on the right shows the top waits for the indicated point on the chart (*snap*).



Waits Analyze

As part of a detailed analysis, you can sort waits by:

- Wait type
- Wait class
- Affecting performance



Waits Analyze

The data presented in the chart are visible in the form of the table to the right.

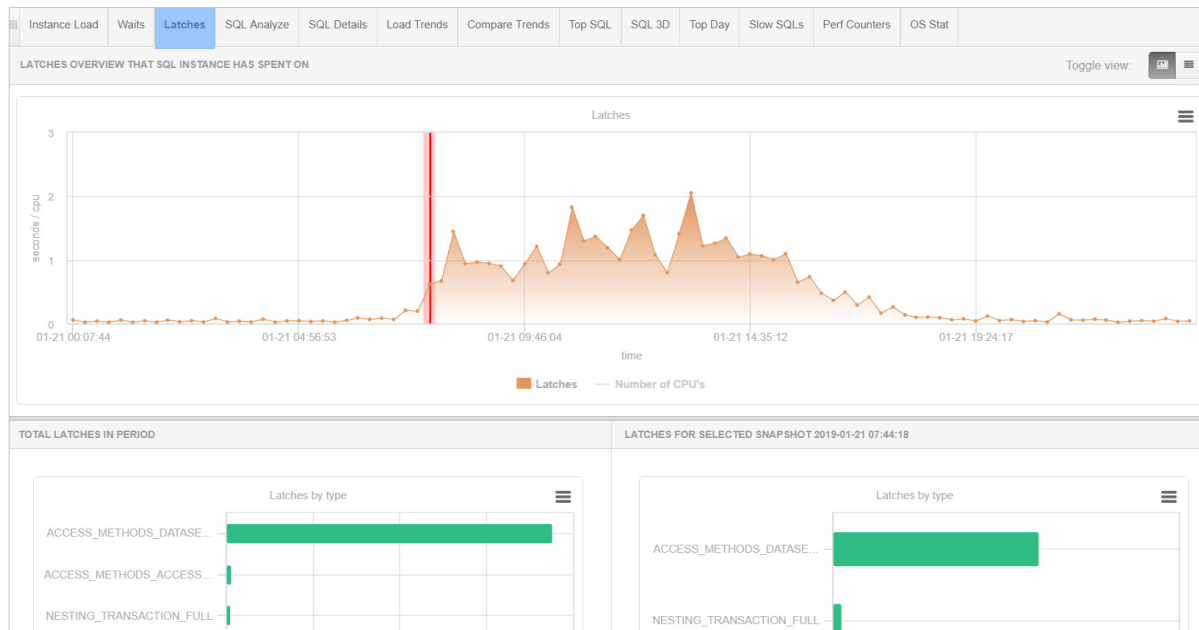
WAITS STATISTICS				
<input type="text" value="Search wait by any value from below table column"/>				
Name	Description	Class	Total wait time in period [Seconds]	Load [%]
LATCH_EX	Occurs when waiting for an EX (exclusive) latch. This does n	Latch	251 987.655	19.7
PAGEIOLATCH_SH	Occurs when a task is waiting on a latch for a buffer that is in an I	Buffer I/O	174 443.965	13.6
OleDb	Occurs when SQL Server calls the SQL Server Native Client OLE	Network I/O	152 632.683	11.9
BACKUPBUFFER	Occurs when a backup task is waiting for data, or is waiting for a t	Backup	144 230.388	11.3
ASYNC_IO_COMPLETION	Used to indicate a worker is waiting on a asynchronous I/O operat	Other Disk I/O	136 658.144	10.7
BACKUPIO	Occurs when a backup task is waiting for data, or is waiting for a t	Backup	127 623.137	10.0
SOS_SCHEDULER_YIELD	Used to indicate a worker has yielded to let other workers run on	Cpu	91 710.281	7.2
LCK_M_S	Occurs when a task is waiting to acquire a Shared lock.	Lock	50 790.381	4.0
ASYNC_NETWORK_IO	Occurs on network writes when the task is blocked behind the net	Network I/O	50 596.413	4.0
PAGEIOLATCH_EX	Occurs when a task is waiting on a latch for a buffer that is in an I	Buffer I/O	33 366.136	2.6
IO_COMPLETION	Used to indicate a wait for I/O for operation (typically synchronous	Other Disk I/O	26 321.060	2.1
WRITELOG	Indicates a worker thread is waiting for LogWriter to flush log bloc	Tran Log I/O	26 051.420	2.0

Latches

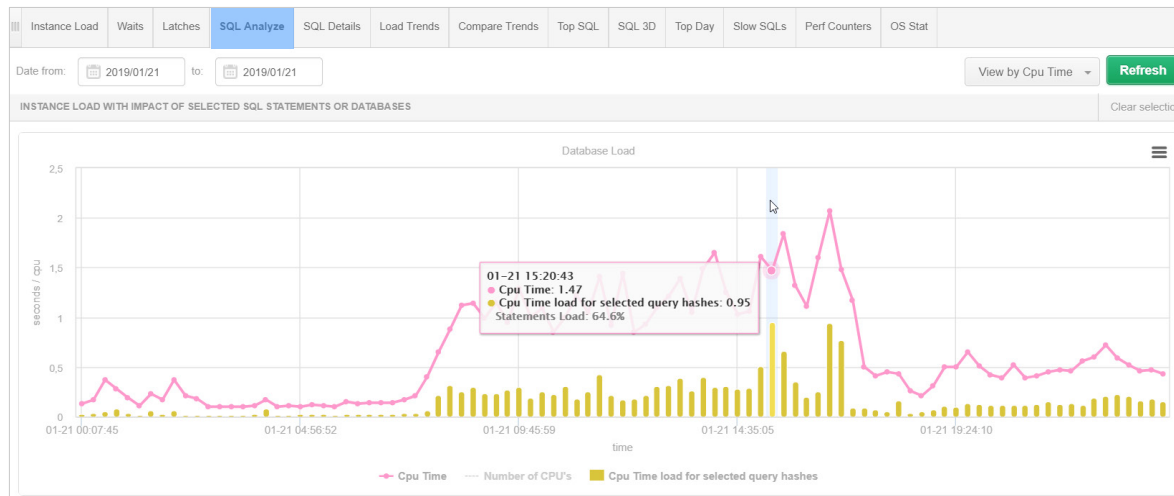
It is possible to present information about the latches occurring in an SQL instance in a given period of time.

The chart on the left shows the **top latches** for the day.

The graph on the right shows the top latches for the indicated point on the chart (*snap*).



The graph shows the Elapsed Time or CPU utilisation for a given period of time.



After selecting the queries under the graph, you can view information about their share of the overall utilisation of a given parameter.

SQL STATEMENTS EXECUTED DURING SPECIFIED PERIOD TIME													
<div><div></div><div>Search query by any value in below snapshot table</div></div>													
Database	Query text	Query Hash	Plan Hash	Use plan guide	Elapsed Time [Seconds]	Cpu Time [Seconds]	Io, Wait Time [Seconds]	Time per 1 exec [Seconds]	Executions	Disk reads [Blocks]	Buffer gets [Blocks]	Buffer writes [Blocks]	Rows processed
master	SELECT TOP ? * FROM "Navision UA" *	0x8239E622664E 0x407E1691B			3 078.44	3 028.69	49.75	0.0065	474 402	18	828 889 978	0	474 402
Navision I	SELECT * FROM "Navision UA"."dbo"."I	0xA206A10EF59C 0x04F953C56			3 032.77	2 992.42	40.35	18.6060	163	2 713 253	429 636 830	2 091 612	1 630
Navision I	SELECT [name], [usertype], [xtype], [len	0x48A2449BA1F6 0x1615A072D			2 036.76	1 989.15	47.61	0.0033	618 517	6 036	49 289 786	0	18 580 144
Navision I	(SELECT TOP ? ? FROM [cdc].[dbo].[In	0xEE9BBE0F813 0x3AD65B04F			1 870.31	1 867.00	3.31	0.2793	6 697	783	106 828 699	0	193
Navision I	DELETE FROM "Navision UA"."dbo"."O	0xA9656863909 0xE1A3DD5C			1 729.84	1 175.97	553.86	0.0001	13 961 589	398 051	503 112 223	34 243 213	13 961 589
Navision I	SELECT SUM("SUM\$Quantity") FROM	0x02A00A816CD 0x8E4B82373			1 701.70	1 554.93	146.76	0.0000	41 134 321	548 015	223 381 949	0	41 134 321

Contains detailed performance statistics for each query.

Data are presented for the indicated period of time with the possibility of grouping by:

- *Snap (15 minutes)*
- *Hour*
- *Day*
- *Month*

It is also possible to display Online data - downloaded on a regular basis from the sys.dm_exec_query_stats view

The screenshot displays the DBPLUS SQL Details interface. At the top, there are tabs for Instance Load, Waits, Latches, SQL Analyze, SQL Details (selected), Load Trends, Compare Trends, Top SQL, SQL 3D, Top Day, Slow SQLs, Perf Counters, and OS Stat. Below the tabs, a search bar shows the instance ID 0xA7C62AEF8C46008D. The time range is set from 2019/02/03 00:00 to 2019/02/03 23:59, with a 'Group by plan hash' checkbox checked. A 'Group by Snap' dropdown is set to 'Snap', and there are 'Online values', 'Refresh', and 'Find SQL' buttons.

The 'STATEMENT TEXT' section shows a complex SQL query involving a subquery and a join operation.

The 'SQL STATISTICS' section includes a table with columns: Date, Plan hash, Elapsed Time, Cpu Time, Rows processed, Executions, Disk Reads, Disk Reads, Buffers Get, Buffers Write, Buffer Quality, Gen. Num, and Elapsed Time per 1 Exec. The table contains four rows of data for different time snapshots.

The 'Explain plan' section shows the execution plan for the query, including a tree diagram and the corresponding SQL text.

Date	Plan hash	Elapsed Time [Seconds]	Cpu Time [Seconds]	Rows processed	Executions	Disk Reads [Blocks]	Disk Reads [MB]	Buffers Get [Blocks]	Buffers Write [Blocks]	Buffer Quality [%]	Gen. Num	Elapsed Time per 1 Exec [Seconds]
2019-02-03 05:12:52	0x83C3120130DA	55.3	104.8	155 853	1	2 034 517	15 895 MB	4 867 665	2 398	70.5	48	55.2803
2019-02-03 07:14:38	0x83C3120130DA	21.3	83.3	0	1	0	0	4 867 664	2 398	100.0	53	21.3073
2019-02-03 11:02:52	0x83C3120130DA	113.7	118.4	155 853	1	4 860 663	37 974 MB	4 867 678	2 398	50.0	58	113.7377
2019-02-03 15:06:19	0x83C3120130DA	106.6	119.4	155 853	1	4 860 593	37 973 MB	4 867 661	2 398	50.0	63	106.6116

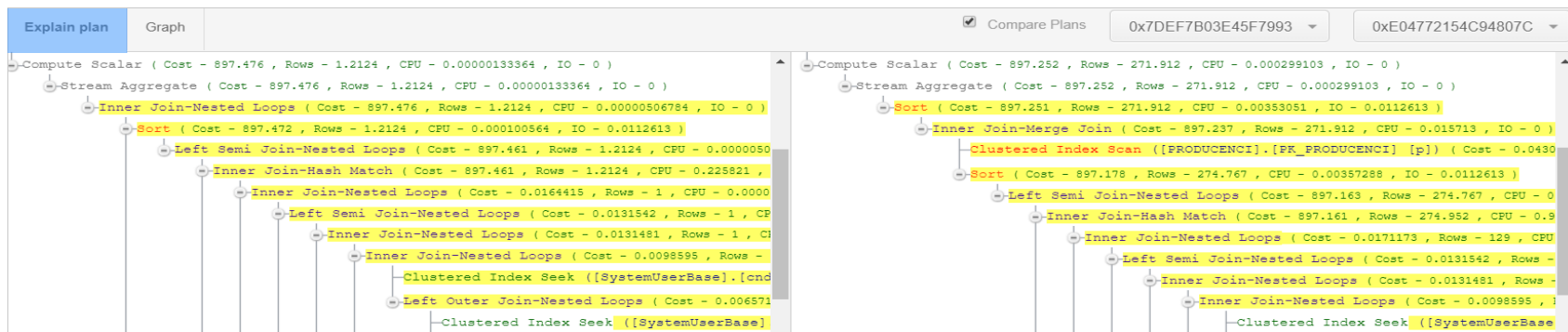
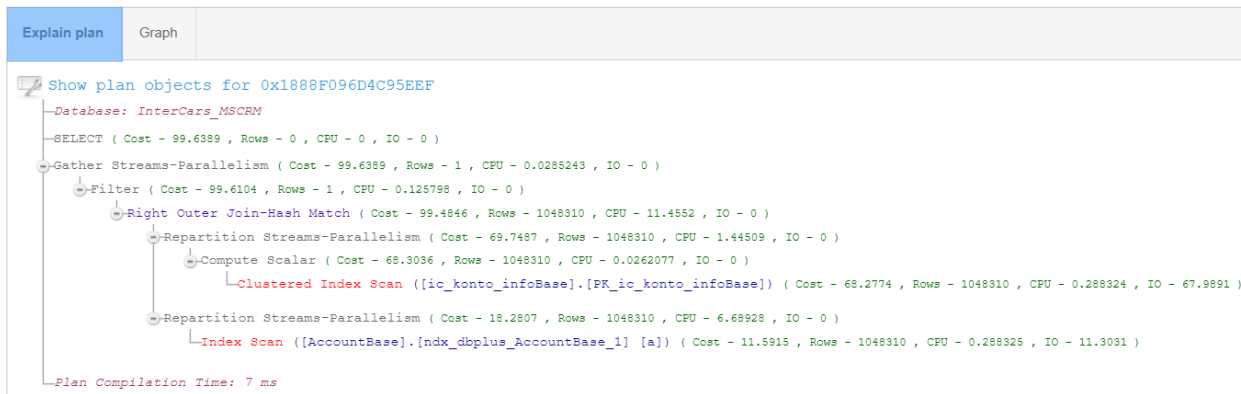
SQL Details

DBPLUS
better performance

Easy access to the [Explain plan.](#)

It is possible to view sample parameters which the query is performed with.

And to compare the plans
used by a given query over a
period of time.



SQL Details

An easy way to generate a **Plan guide script** for the selected Explain plan.

Substitution of exemplary **call parameters** to the query.

And you can change the view of the **Explain plan** presentation into **graphic**.

The screenshot displays the DBPLUS SQL Details interface. At the top, there are tabs for Instance Load, Waits, Latches, SQL Analyze, **SQL Details**, Load Trends, Compare Trends, Top SQL, SQL 3D, Top Day, Slow SQLs, Perf Counters, and OS Stat. Below the tabs, a query ID (0x47505308B630578A) is shown along with filters for time (2019/01/01 to 2019/02/03 23:59) and a checkbox for 'Group by plan hash'. A 'Refresh' button and a 'Find SQL' button are also present.

The 'STATEMENT TEXT' section shows a complex SQL query with various joins and filters, including a subquery for 'maza' and a 'WHERE' clause with multiple conditions.

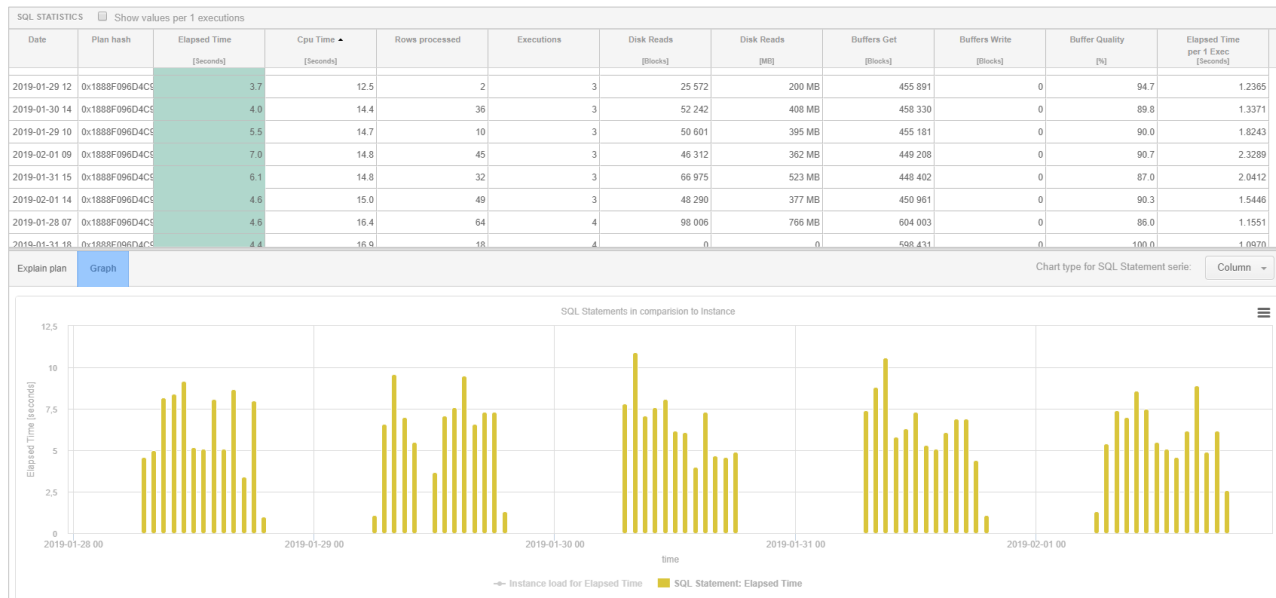
The 'SQL STATISTICS' section includes a table with columns: Plan hash, Elapsed Time (Seconds), Cpu Time (Seconds), Rows processed, Executions, Disk Reads (Blocks), Disk Reads (MB), Buffers Get (Blocks), Buffers Write (Blocks), Buffer Quality (%), and Elapsed Time per 1 Exec (Seconds). Two rows of data are shown for plan hashes 0x7DEF7B03E45F7993 and 0xE04772154C94.

The 'Explain plan' section shows a tree view of the query execution plan. A context menu is open over the plan, offering options: 'Show plan objects for 0x7DEF7B03E45F7993', 'Explain plan options', 'Save to XML', 'Generate plan guide script', 'Show statement script with filled parameters', and 'Change view to graphical'.

SQL Details

The query statistics can be viewed in a graph by clicking on a given column in the table.

Instance load for... - the option to estimate the impact of a given query in relation to the statistics for the entire database.



Show Plan Objects

Includes:

- Query content
- Query plan
- Query objects:
 - Views
 - Indices
 - Tabela
- Details of the object

SQL TEXT					EXPLAIN PLAN							
<pre>SELECT a.AccountId, a.AccountNumber, a.Name, a.OwnerId FROM MSCRM.dbo.AccountBase a with (nolock) left join MSCRM.dbo.ic_konto_info ki on ki.ic_kontoId = a.AccountId WHERE ki.ic_konto_infoId is null</pre>					<pre>SELECT (Cost - 99.6389 , Rows - 0 , CPU - 0 , IO - 0) ├─Gather Streams-Parallelism (Cost - 99.6389 , Rows - 1 , CPU - 0.0285243 , IO - 0) │ └─Filter (Cost - 99.6104 , Rows - 1 , CPU - 0.125798 , IO - 0) │ └─Right Outer Join-Hash Match (Cost - 99.4846 , Rows - 1048310 , CPU - 11.4552 , IO - 0) │ └─Repartition Streams-Parallelism (Cost - 69.7487 , Rows - 1048310 , CPU - 1.44509 , IO - 0) │ └─Compute Scalar (Cost - 68.3036 , Rows - 1048310 , CPU - 0.0262077 , IO - 0) │ └─Clustered Index Scan ([ic_konto_infoBase].[PK_ic_konto_infoBase]) (Cost -</pre>							
OBJECTS USED IN EXPLAIN PLAN					INDEXES FOR SELECTED OBJECT [DBO].[IC_KONTO_INFOBASE]							
Type	Owner	Object Name	Table Name	Database	Index name	Enabled	Index columns	Included columns	Seeks	Scans	Lookups	Updates
index	[dbo]	[PK_ic_konto_infoBase]	[ic_konto_infoBase]		ndx_Core	✓	statecode, statuscode		0	0	0	3 220
index	[dbo]	[ndx_dbplus_AccountBase_1]	[AccountBase]	[MSCRM]	ndx_for_cascaderelatio	✓	ic_filaId		1	0	0	386
table	[dbo]	[ic_konto_infoBase]	[ic_konto_infoBase]	[MSCRM]	ndx_ic_name	✓	ic_name		88	0	0	3 606
table	[dbo]	[AccountBase]	[AccountBase]	[MSCRM]	ndx_Security	✓	OwnerId		274	7	0	8 898
					ndx_Sync	✓	VersionNumber		0	0	0	9 289
Object columns		DDL info	Properties	Details for table [dbo].[ic_konto_infoBase]								
Column	Type	Max Length	Position	Is identity	Is computed	Is nullable	Is sparse	Density	Unique values	Rows sampled		
konto_infol	uniqueidentifier	16	1	☐	☐	☐	☐	0.00000000	45 260	45 260		
CreatedOn	datetime	8	2	☐	☐	✓	☐	0.00001608	62 193	68 577		
CreatedBy	uniqueidentifier	16	3	☐	☐	✓	☐	0.50000000	2	44 573		
ModifiedOn	datetime	8	4	☐	☐	✓	☐	0.00007126	14 034	43 993		
ModifiedBy	uniqueidentifier	16	5	☐	☐	✓	☐	0.50000000	2	45 169		
CreatedOnBehalfBy	uniqueidentifier	16	6	☐	☐	✓	☐	1.00000000	1	44 573		

SQL Details (cont.)

It is also possible to search queries using *Find SQL*

We can search through:

- Typing a text fragment
- Queries changing the plan
- New queries in a given period
- Queries using the object

Instance Load Waits Latches SQL Analyze **SQL Details** Load Trends Compare Trends Top SQL SQL 3D Top Day Slow SQLs Perf Counters OS Stat

0x1A1822E4354E72B4 From: 2019/01/28 00:00 to: 2019/02/01 23:59 ☒ Group by plan hash Group by Hour Online values **Refresh** **Find SQL**

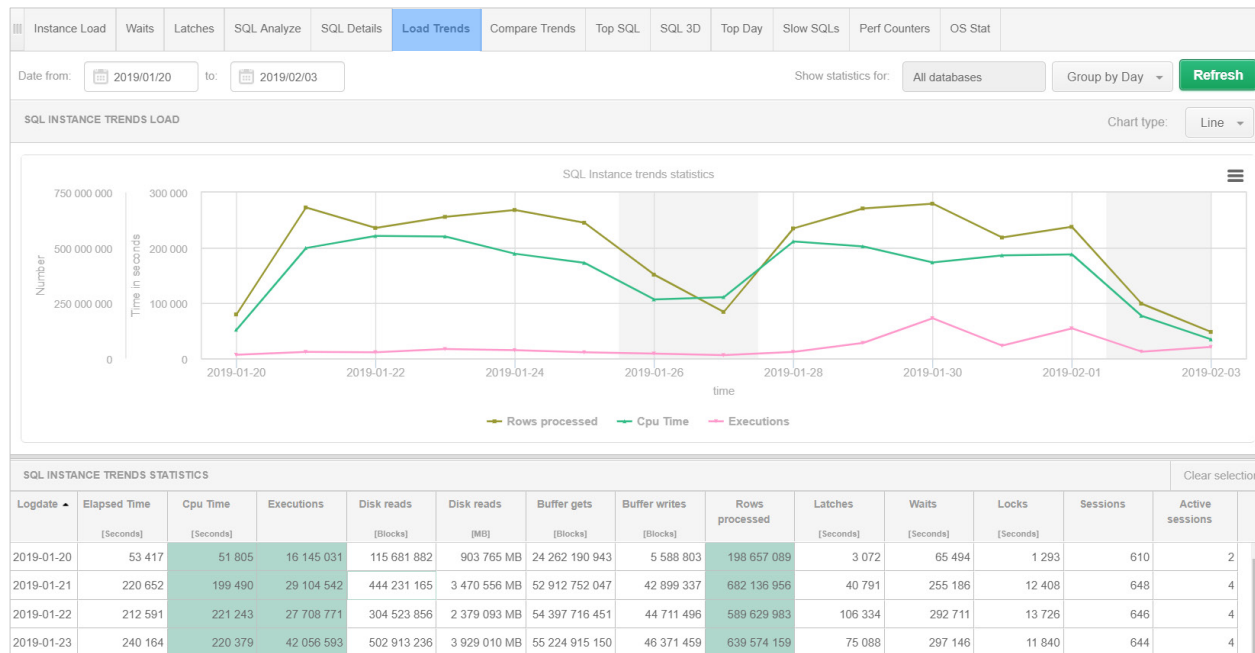
Statement by text									
AccountBase									
Date from: 2019/02/03 00:00 Date to: 2019/02/03 23:59 Max. returned statements: 100									
Search									
FIND RESULTS FOR EXACT QUERY TEXT MATCHING WITH ACCOUNTBASE									
Query Hash	Last execution date	Elapsed Time [Seconds]	Cpu Time [Seconds]	Executions	Disk reads [MB]	Buffer gets [Blocks]	Buffer writes [Blocks]	Rows processed	Query text
0x512847856B9B402A	2019-02-03	0.33	0.11	79	3 MB	8 043	964	79	insert into [AccountBase]([Merged], [ic_a
0x75417FD30D0AEC14	2019-02-03	0.41	0.41	6 423	0	44 961	0	6 423	select "account0".AccountId as "account
0xF489B0D7189CEB86	2019-02-03	1.71	1.70	24 839	0	173 873	0	24 839	select "account0".AccountId as "account
0x8C2F6FECB8A2AF34	2019-02-03	0.10	0.09	238	0 MB	4 601	1	238	select "account0".AccountId as "account
0xEE3A9E013BE7D5F7	2019-02-03	0.01	0.01	66	0	462	0	66	select "account0".AccountNumber as "ac
0x9274743565BF4543	2019-02-03	0.55	0.55	8 365	0	58 555	0	8 365	select "account0".ic_krj_source as "ic_kr
0x1B46669233171854	2019-02-03	0.07	0.06	953	0	6 671	0	953	select "account0".Name as "name", "acc
0x7AE9494AF07D67D2	2019-02-03	0	0	7	0	49	0	7	select "account0".Name as "name", "acc
0x44507AF40AF4187D	2019-02-03	0.01	0.01	58	0	408	0	58	select "account0".Name as "name", "acc
0x1A1822E4354E72B4	2019-02-03	55.94	200.86	46	1 537 MB	6 951 515	0	107	SELECT a.AccountId, a.AccountNumber
0xA66B4C59BBCD1B17	2019-02-03	1.71	1.64	1	0 MB	129 665	122	0	SELECT A.AccountID, K.KH, K.KH_KOD

Load trends

Allows you to get information about trends taking place in the database for the indicated statistics.

Data are presented for the indicated period of time and can be grouped by:

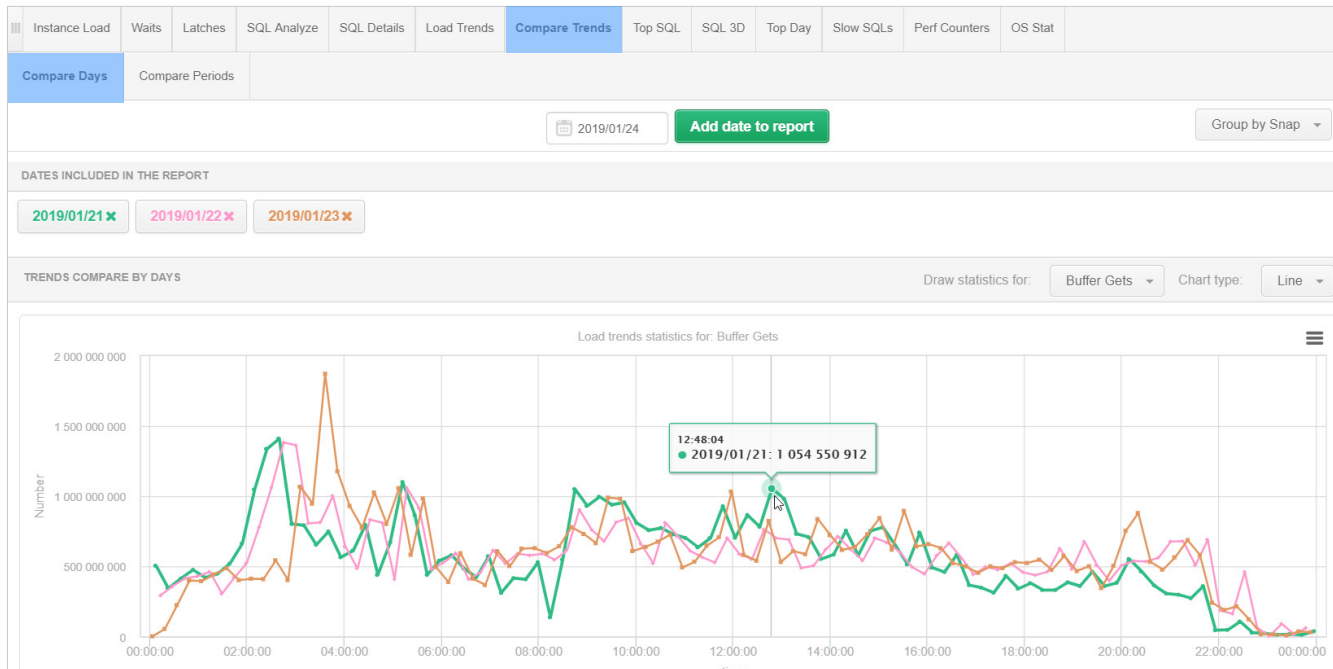
- *Snap (15 minutes)*
- *Hour*
- *Day*
- *Month*



Compare trends

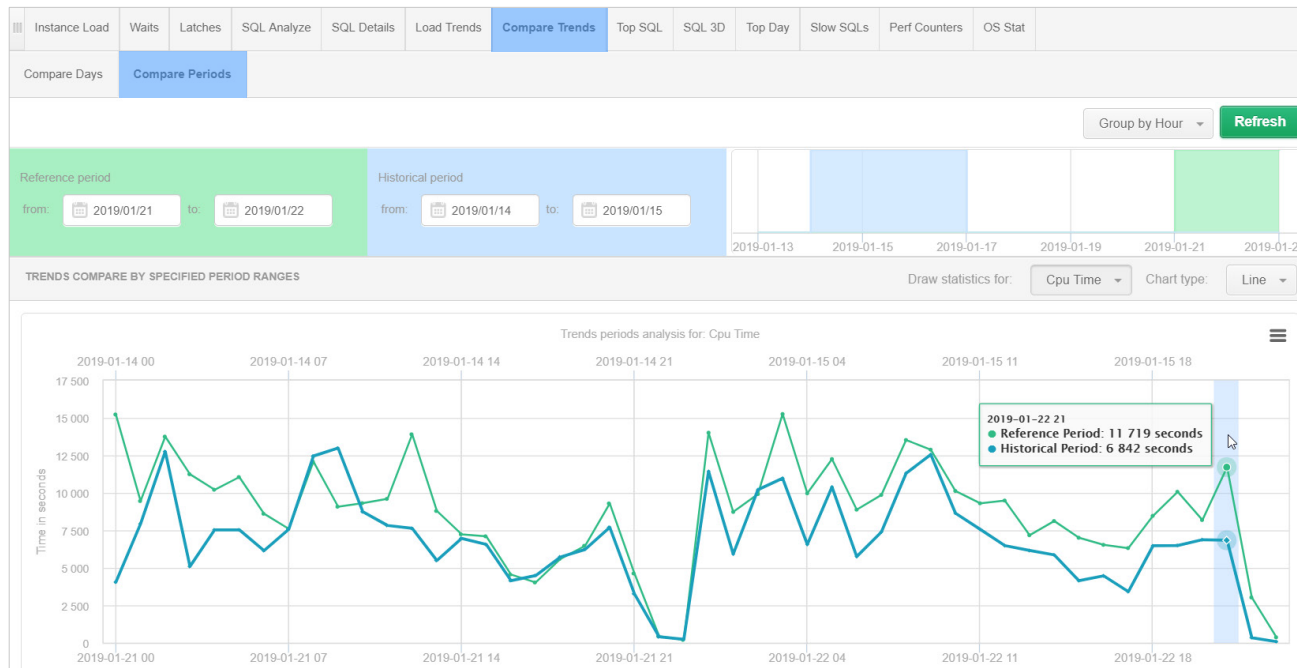
Allows you to compare statistics.

You can compare data collected for a specific **day** (Compare Days tab).



Compare trends

It is also possible to compare data for a **period of time** (Compare Periods).

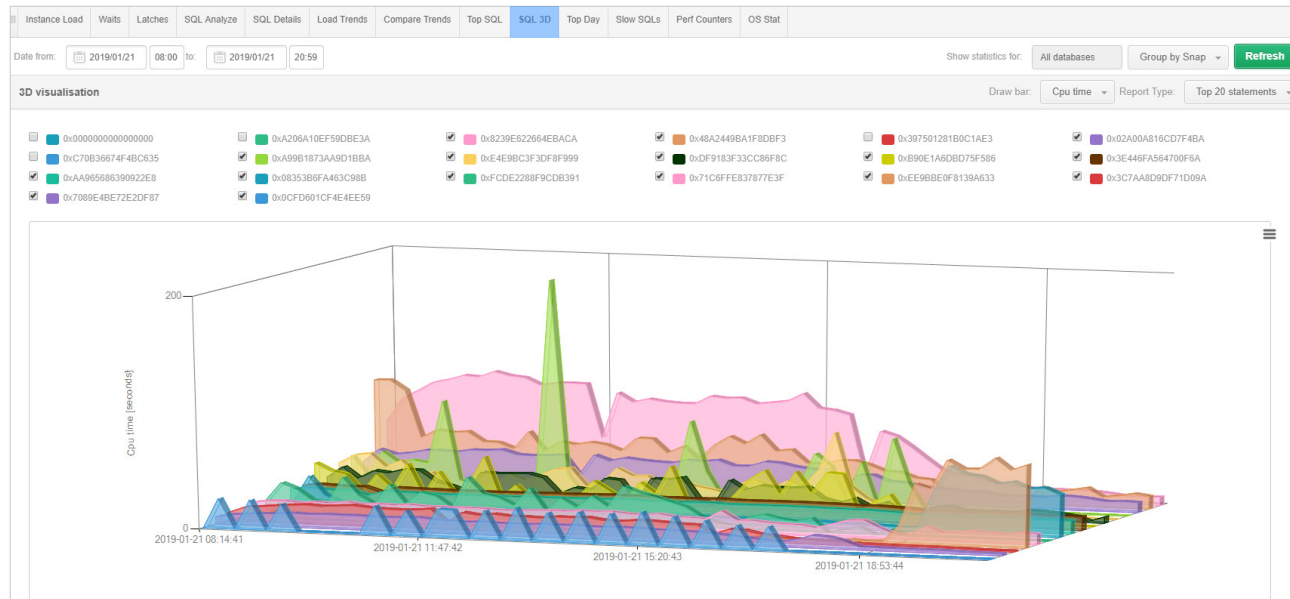


Top SQL/SQL 3D

Presents information about the queries that have the largest share in a given parameter.

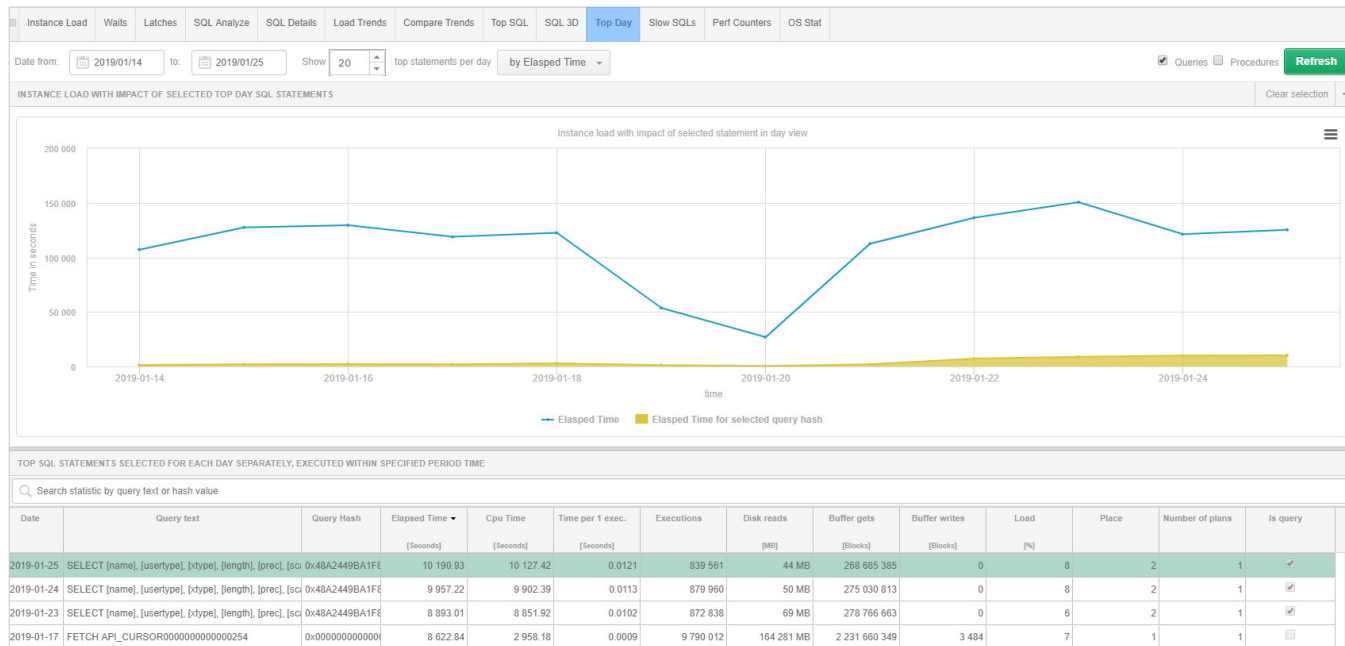
We can choose:

- Elapsed Time
- CPU Time
- Disk reads [block]
- Disk reads [MB]
- Rows processed
- Buffer Gets
- Buffer writes
- Execution



Top Day

Allows you to display top queries or procedures for **CPU Time** or **Elapsed Time** and track changes in their behaviour.



Slow SQLs

Presents queries that lasted for more than 200 seconds for a given period (default value).

Instance Load

Waits

Latches

SQL Analyze

SQL Details

Load Trends

Compare Trends

Top SQL

SQL 3D

Top Day

Slow SQLs

Perf Counters

OS Stat

Date from:

2019/02/03

to:

2019/02/03

Min elapsed execution time

200

seconds

Refresh

SQL STATEMENTS EXECUTED DURING SPECIFIED PERIOD TIME

Q

Search statistic by query text or hash value

Query text	Query Hash	Plan Hash	Use plan guide	Elapsed Time <div>▼</div>	Cpu Time	Time per 1 exec.	Executions	Disk reads	Buffer gets	Buffer writes	Rows processed
				[Seconds]	[Seconds]	[Seconds]		[MB]	[Blocks]	[Blocks]	
select top ? "email0".Subject as "subject", "email0".Des	0x038B015C7ED	0x7F136B2D8	<input type="checkbox"/>	16 144.91	15 857.35	0.1736	92 988	43 271 MB	17 891 476 298	0	183
INSERT into #sprzedazBI (pla_kod, msc_naz, msc_id,	0x4563A29B0D0	0x7270D807A	<input type="checkbox"/>	1 014.59	1 014.35	23.0589	44	0 MB	6 972	7	21 594
SELECT @Selected=SessionID, @LockVersion = Lock	0x095A0AD53F7	0xDC8B293A	<input type="checkbox"/>	872.56	0.12	0.2603	3 352	0	7 036	0	3 349
INSERT INTO AZURECRM365.crm_365 [dbo].[F_UMO	0x022FC9DAB65	0xA953B74DF	<input type="checkbox"/>	667.02	660.53	667.0203	1	203 MB	16 481 437	8 306	88 922
INSERT into #sprzedazBI (data_bil, kh_kod, msc_naz,	0xBE26A8089768	0x7270D807A	<input type="checkbox"/>	608.06	605.75	304.0287	2	0	2 534	2 782	110 693
INSERT into #sprzedazBI (data_bil, kh_kod, msc_naz,	0x523A5E2645F	0x7270D807A	<input type="checkbox"/>	514.53	513.04	0.2850	66	0	34 064	340	380 044

STATEMENT TEXT FOR QUERY HASH: 0X095A0AD53F707A6D

SELECT @Selected=SessionID, @LockVersion = LockVersion FROM [ReportServerTempDB].dbo.SessionLock WITH (ROWLOCK) WHERE SessionID = @SessionID

EXPLAIN PLAN FOR PLAN HASH: 0XDC8B293AC4EE2D37

SQL icon

Show plan objects for 0xDC8B293AC4EE2D37

Database: ReportServerTempDB

SELECT (Cost = 0.0032832, Rows = 0, CPU = 0, IO = 0)

Compute Scalar (Cost = 0.0032832, Rows = 1, CPU = 0.0000001, IO = 0)

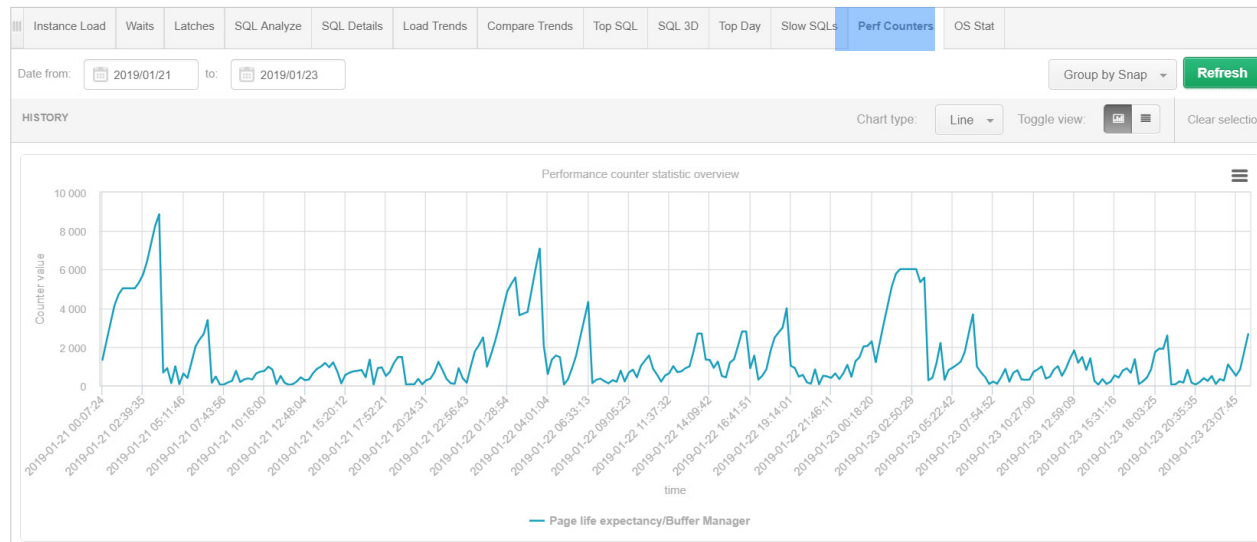
Clustered Index Seek ([SessionLock].[IDX_SessionLock]) (Cost = 0.0032831, Rows = 1, CPU = 0.0001581, IO = 0.003125)

Perf Counters

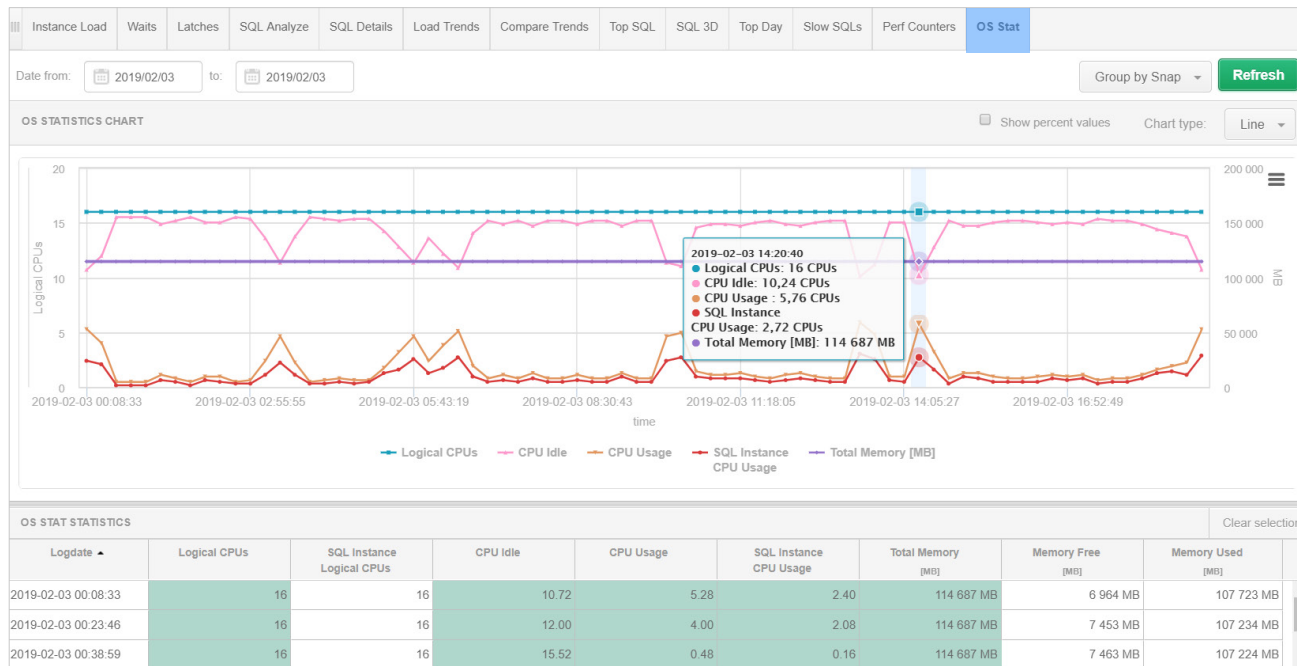
All database statistics are displayed in the system view of `sys.dm_os_performance_counters`

It is also possible to present information in tabular form.

Data is presented for up to **30 days**.



Operating System statistics stored in the `sys.dm_os_ring_buffers` system view are presented.



Plan Guides

Information about the **Plan Guide** created in a given instance is presented.

Current and **historical** information is available.

Information about **when** and **what** change has been made is stored.

Plan Guides Overview

Plan Guides History

Plan guides for

All databases

 Filter by Query Hash

☐ Include dropped plan guides

Refresh

CURRENT PLAN GUIDES LIST

If plan guide doesn't contain query hash information it could mean that query is executed very fast or plan guide is not used.

Search by any value in below plan guide list

Database	Name	Create date	Last modify	Is Disabled	Statement text	Query Hash	Scope	Scope object name	Scope object type	Parameters	Hints
Navision UA	DBPLUS_0x178387	2015-02-04 15:06:52	2015-02-04 15:06:52	<input type="checkbox"/>	SELECT TOP 1 NUL		SQL			@P1 varchar(59),@	OPTION (TABLE HIN
Navision UA	DBPLUS_0x65BCAE	2015-02-16 14:00:45	2015-02-16 14:00:45	<input type="checkbox"/>	SELECT * FROM "U		SQL			@P1 varchar(30)	OPTION (TABLE HIN
Navision UA	DBPLUS_0x97F504	2015-02-16 15:02:01	2015-02-16 15:02:01	<input type="checkbox"/>	SELECT TOP 1 NUL		SQL			@P1 varchar(20),@	OPTION (TABLE HIN
Navision UA	DBPLUS_0x93DA71	2015-05-14 14:35:47	2015-05-14 14:35:47	<input type="checkbox"/>	SELECT TOP 1 NUL		SQL			@P1 varchar(20),@	OPTION (TABLE HIN
Navision UA	DBPLUS_0x291762	2015-09-18 10:10:50	2015-09-18 10:10:50	<input type="checkbox"/>	SELECT TOP 1 NUL		SQL			@P1 varchar(20),@	OPTION (TABLE HIN
Navision UA	DBPLUS_0x8695F8	2016-08-09 08:38:08	2016-08-09 08:38:08	<input type="checkbox"/>	SELECT TOP 1 * FR		SQL			@P1 varchar(20),@	OPTION (TABLE HIN
Navision UA	DBPLUS_0x28C51A	2018-04-25 12:28:13	2018-04-25 12:28:13	<input type="checkbox"/>	SELECT TOP 1 NUL	0x098C05A6360C	SQL			@P1 int,@P2 int,@	OPTION(USE PLAN
Navision UA	DBPLUS_0x40B73F	2018-08-02 12:07:11	2018-08-02 12:07:11	<input type="checkbox"/>	SELECT * FROM "N	0x1D7FE64668F1	SQL			@P1 int,@P2 int,@	OPTION(TABLE HIN

DETAILS FOR SELECTED PLAN GUIDE

SQL Text & Hints

Changes history

STATEMENT TEXT

SELECT TOP 1 NULL FROM "Navision UA"."dbo"."Inter Cars UA\$Sales Line" WITH (UPDLOCK, ROWLOCK) WHERE (("Document Type"=@P1)) AND (("Type"=@P2)) AND (("No_"=@P3)) AND (("Appl_-from Item Entry"=@P4))

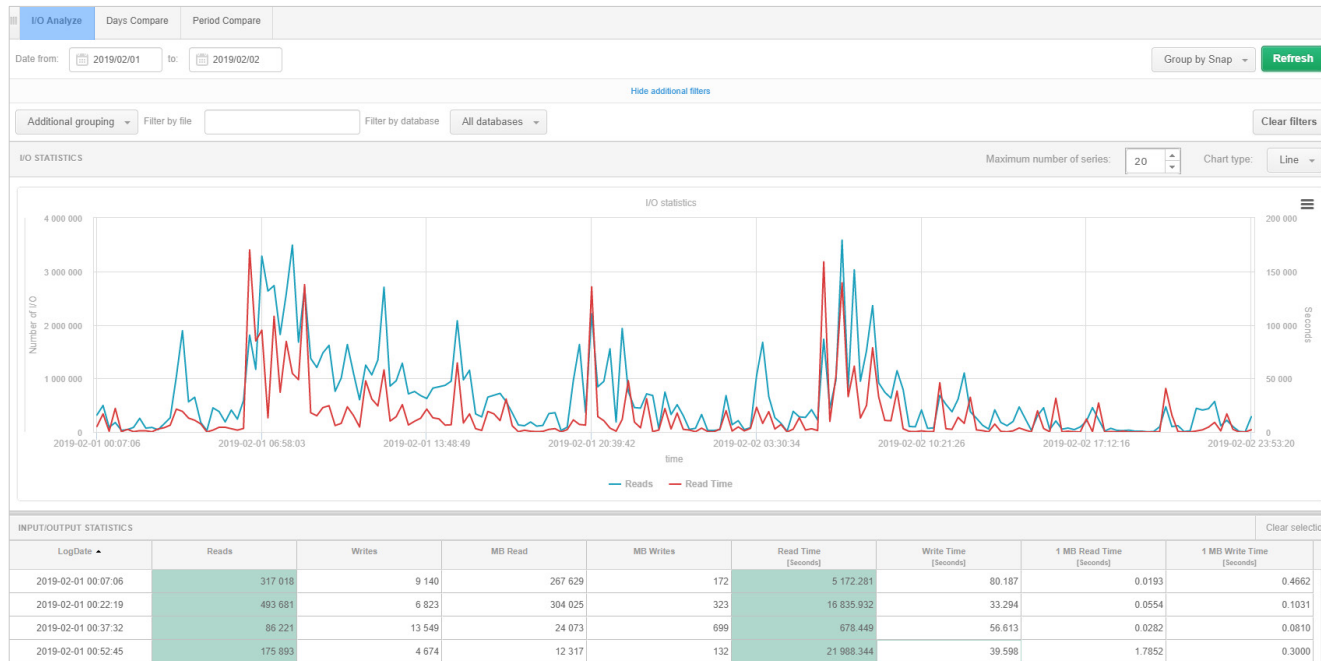
I/O Stats

The module is used to analyse I/O performance.

Information is available on:

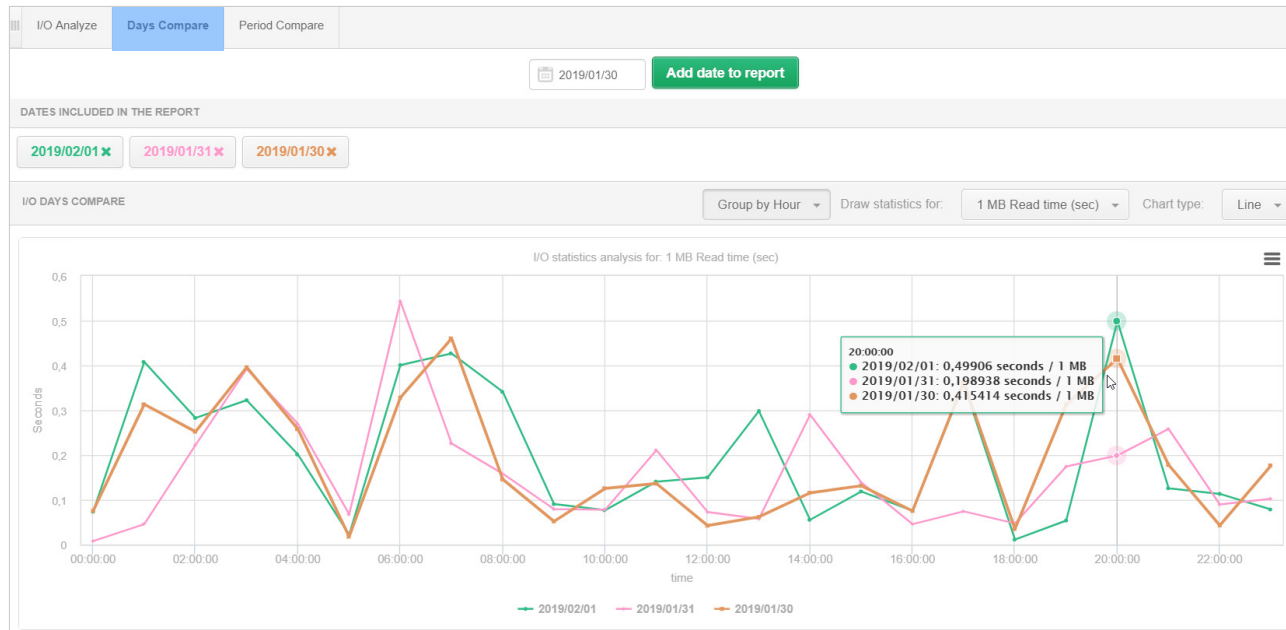
- Number of reads
- Number of writes
- Duration of the read
- Duration of the write

The ability to verify data for the entire [SQL instance](#) as well as a particular [database](#) or [file](#).



I/O Stats

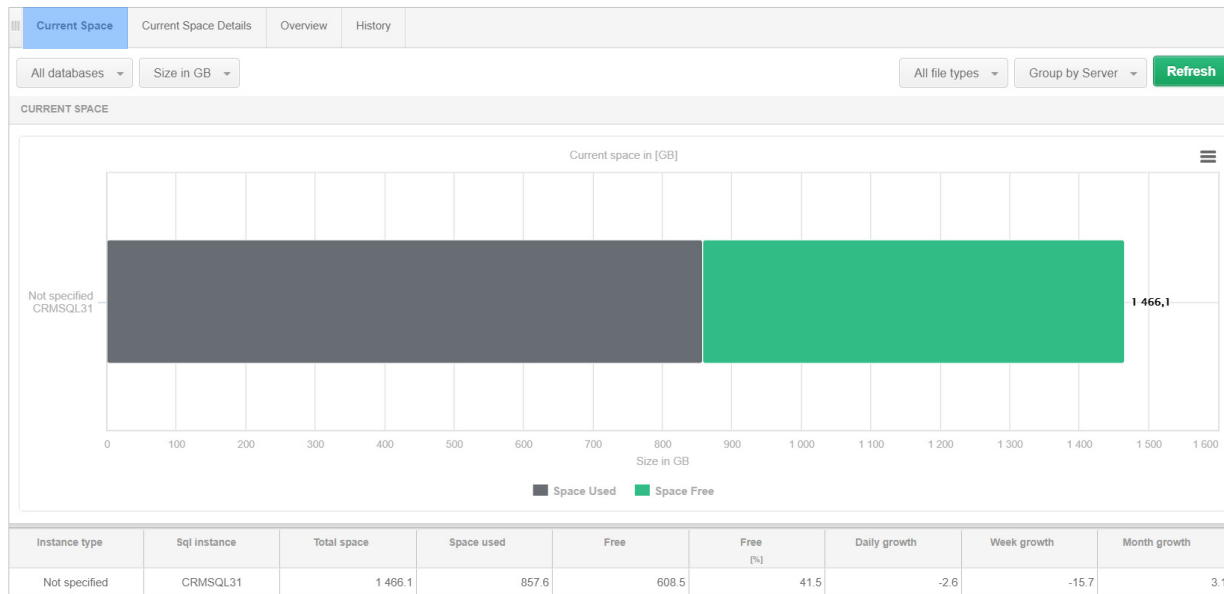
It is possible to compare data collected for a given **day** (Days Compare) as well as for the **period** indicated (Period Compare).



Space Monitor

Allows you to analyse the current disk space occupancy by:

- SQL instances
- Databases
- data files (data/log file)



Space Monitor

Presents historical data for verification.

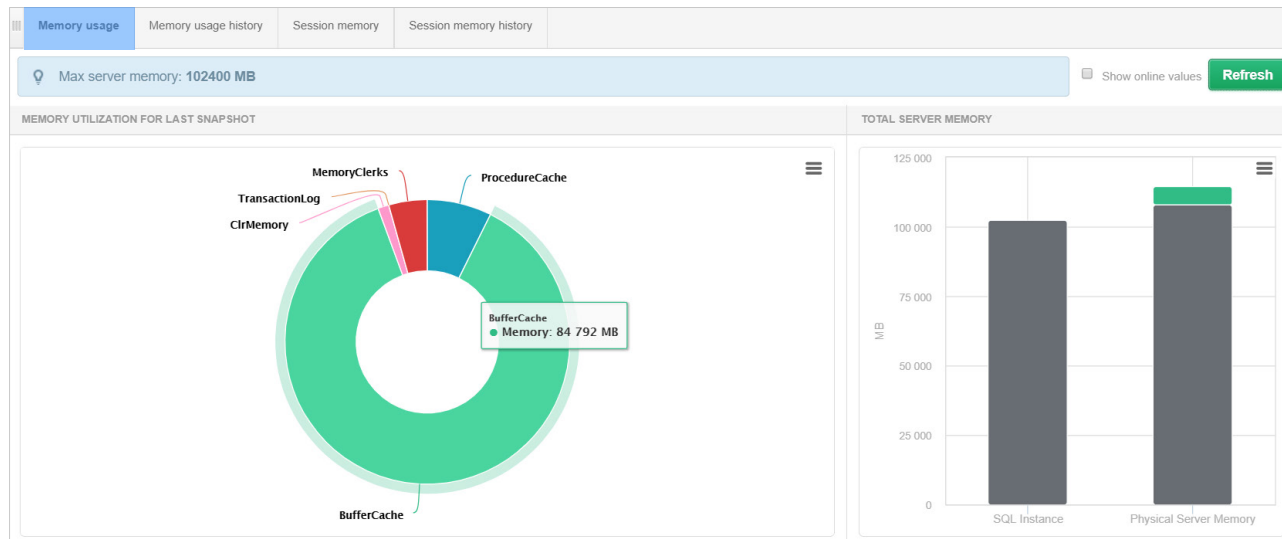
Information on average consumption for a given day, week, month.



Memory

Presents information on memory utilisation in a given SQL instance.

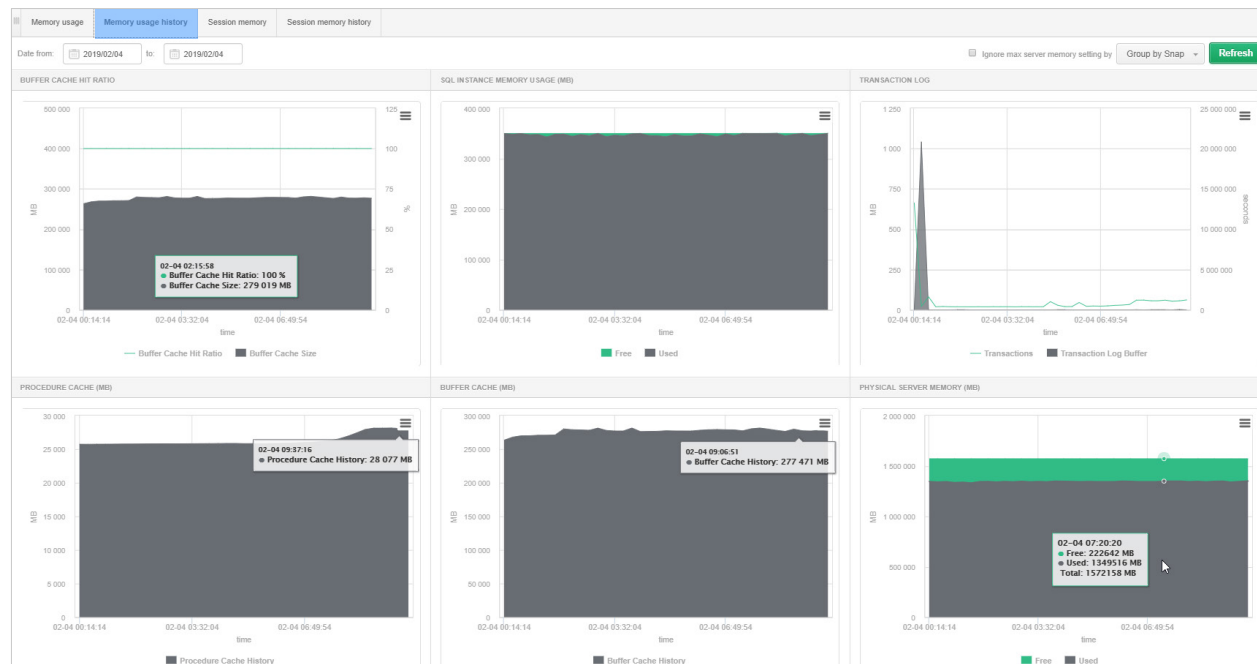
Displays the current memory usage.



Memory

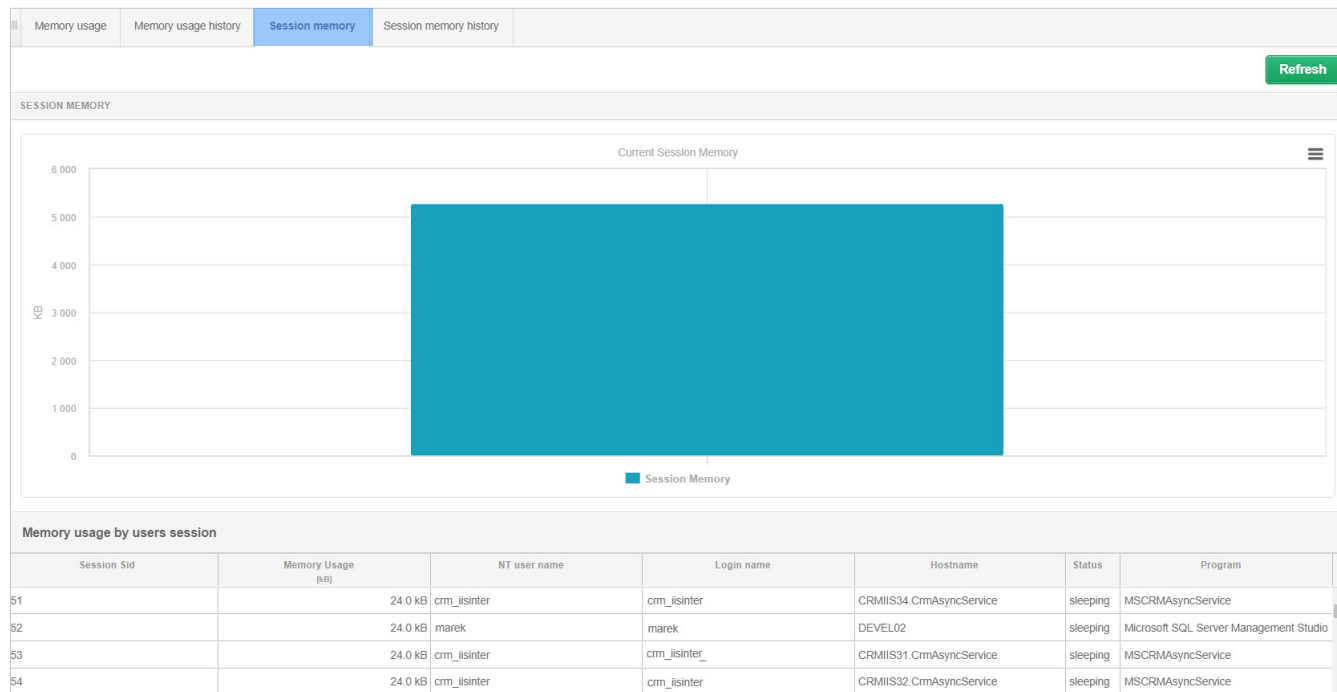
The history of memory usage contains information on:

- Buffer Cache Hit Ratio
- Memory utilization by SQL instances
- Transaction Log
- Procedure Cache Size
- Buffer Cache
- The physical server memory



Memory

Contains information on the memory usage by user sessions.



Sessions

Stores information about sessions in a database displayed according to the criteria in the filters.

Tempdb usage sessions - a screen that allows you to analyse the session in terms of Tempdb database usage.

Log usage session - functionality that allows for session analysis in terms of performing the largest number of changes in the database.

Sessions

Tempdb usage sessions

Log usage sessions

Sessions history

Active sessions / Tempdb sessions / Log usage sessions history

☒ Active sessions

☒ Users only

Min elapsed time:

0

▲

▼

sec. Sid:

All databases

▼

Loginname:

Refresh

Show additional filters

SESSION LIST(LAST REFRESHED: 10:08:50)

Kill session

Logon time	Sessid Id	Query Hash	Login name	Status	Last request start time	Elapsed Time [seconds]	Windows username	Host name	Program	Context Info	Blocking session	Database	Wait	Wait time [Seconds]
2019-02-04 05:38:11	64	0x2BACCBCDD8	Cinas	running	2019-02-04 10:08:12	39	nas	UA-APPNAVIO5	SqQueryNotificationS		0	Navision	BROKER_RECEIVE_	38.14
2019-02-04 05:38:10	61	0xB5E5C63FF43	Cinas	running	2019-02-04 10:08:11	40	nas	UA-APPNAVIO5	SqQueryNotificationS		0	Navision	BROKER_RECEIVE_	39.33
2019-02-04 05:33:19	106	0x4E1CC5F47C6	Cinas	running	2019-02-04 10:08:20	31	nas	UA-APPNAVIO4	SqQueryNotificationS		0	Navision	BROKER_RECEIVE_	30.65
2019-02-04 05:33:17	102	0x196F55A6A2B8	Cinas	running	2019-02-04 10:08:20	31	nas	UA-APPNAVIO4	SqQueryNotificationS		0	Navision	BROKER_RECEIVE_	31.04
2019-02-04 05:33:15	99	0x8216DED0C5C7	Cinas	running	2019-02-04 10:08:19	32	nas	UA-APPNAVIO4	SqQueryNotificationS		0	Navision	BROKER_RECEIVE_	31.84
2019-02-04 05:33:13	92	0x076B479E0B47	Cinas	running	2019-02-04 10:08:15	36	nas	UA-APPNAVIO4	SqQueryNotificationS		0	Navision	BROKER_RECEIVE_	35.85

SQL

Operation progress

Statistics

Waiting tasks

STATEMENT TEXT

WAITFOR (RECEIVE TOP (1) message_type_name, conversation_handle, cast(message_body AS XML) as message_body from [SqQueryNotificationService-297f3c23-5411-4a01-b183-29ab6e9df5c]), TIMEOUT @p2;

EXPLAIN PLAN

Show plan objects for 0xB34D22FC24C8B0C7

Database: Navision

RECEIVE MSG (Cost = 0.0298611, Rows = 0, CPU = 0, IO = 0)

Compute Scalar (Cost = 0.0298611, Rows = 1, CPU = 0.0000001, IO = 0)

Clustered Index Delete ([queue_messages_1353680516].[queue_clustered_index] [it]) (Cost = 0.029861, Rows = 1, CPU = 0.000002, IO = 0.02)

Left Outer Join-Nested Loops (Cost = 0.00986902, Rows = 1, CPU = 0.00000418, IO = 0)

Top (Cost = 0.00687126, Rows = 1, CPU = 0.0000001, IO = 0)

Sessions history

The table is divided into three groups:

Yellow shows information about active sessions.

Green shows information about sessions using Tempdb.

Red shows information about sessions that save into the Log.

SessionsTempdb usage sessionsLog usage sessionsSessions historyActive sessions / Tempdb sessions / Log usage sessions history

From:2019/02/0408:00to:2019/02/0423:59Using Query Hash:Enter query hashLoginname:Enter login/usernameSid:

Refresh

Show additional filters

ACTIVE SESSIONS / TEMPDB / LOG USAGE SESSIONS HISTORYToggle view:

Logdate	Active Sessions	Sessions using Tempdb	Tempdb Space Used [MB]	Log Usage Sessions	Log Usage Record Count	Log Space Used [MB]
2019-02-04 08:00:29	13	115	9 495.3 MB	9	7861	3.5 MB
2019-02-04 08:01:00	19	118	9 497.2 MB	10	7842	3.7 MB
2019-02-04 08:01:31	4	118	9 502.3 MB	3	10967	5.3 MB
2019-02-04 08:02:02	11	115	9 499.3 MB	2	122	0.1 MB
2019-02-04 08:02:33	6	119	9 502.8 MB	0	0	0
2019-02-04 08:03:04	7	120	9 499.6 MB	3	381	0.2 MB
2019-02-04 08:03:35	11	123	9 510.5 MB	2	2236	0.7 MB
2019-02-04 08:04:05	8	119	9 504.5 MB	4	460	0.2 MB
2019-02-04 08:04:36	8	127	9 509.0 MB	2	131	0.1 MB

SessionsTempdb usageLog usage

Type	Session Id	Program	Nt user name	Host name	Login name	Context Info	Query Hash	Plan Hash	Wait type	Wait time [Seconds]	Blocking session id	Command	Database	Elapsed Time [Seconds]	Cpu Time [Seconds]
Cursor	140	Microsoft Dynam	AMELNICH	UA-TS02	UAVAMELNICH		0xE25529ACFE99A1	0x959094C5D443F		0 0		EXECUTE	master	0	0
Cursor	140	Microsoft Dynam	AMELNICH	UA-TS02	UAVAMELNICH		0x9D6B58E2BD6E47	0xE2891A02B10F		0 0		EXECUTE	master	0	0
Cursor	140	Microsoft Dynam	AMELNICH	UA-TS02	UAVAMELNICH		0x37AF90CC2D153	0x7AD231F61FF3E		0 0		EXECUTE	master	0.026	0.026
Cursor	140	Microsoft Dynam	AMELNICH	UA-TS02	UAVAMELNICH		0xB51B7B73A4E74C	0x6F8F3E1F97A42		0 0		EXECUTE	master	0	0

Sessions history

Sessions can be sorted using:

- Query Hash
- Username
- Sid
- Wait type
- Hostname
- Context Info
- Database

SessionsTempdb usage sessionsLog usage sessionsSessions history

Active sessions / Tempdb sessions / Log usage sessions history

From:2019/02/0408:00 to:2019/02/0423:59Using Query Hash:Enter query hashLoginname:Enter login/usernameSid:140

Refresh

Hide additional filters

Performance Waits

page

PAGELATCH_NL
PAGELATCH_SH
PAGELATCH_UP
SOS_PHYS_PAGE_CACHE
SOS_SMALL_PAGE_ALLOC
UTIL_PAGE_ALLOC

Waits selected to filtering

Hostname:

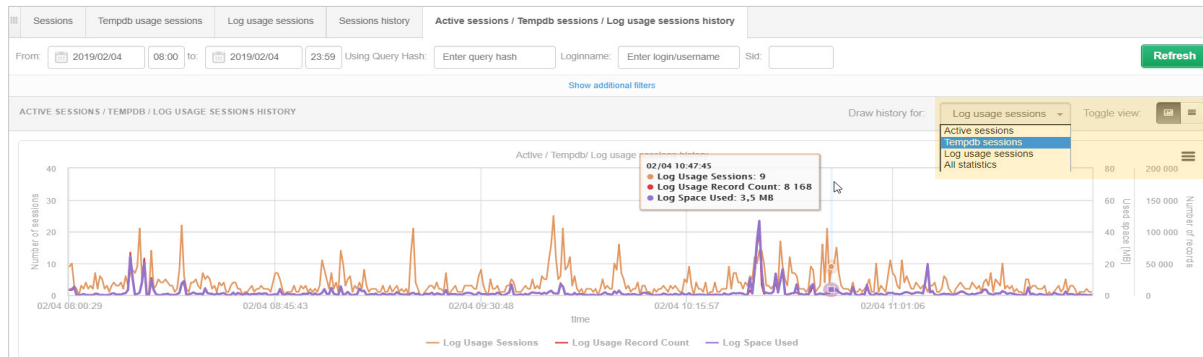
Context Info:

All databases

SessionsTempdb usageLog usage

Logdate	Type	Session Id	Program	NT user name	Host name	Login name	Context Info	Query Hash	Plan Hash	Wait type	Wait time [Seconds]	Blocking session Id	Command	Database	Elapsed Time [Seconds]	Cpu Time [Seconds]
2019-02-04 08:00:29	Cursor	140	Microsoft Dynar	AMELNICH	UA-TS02	UAIAMELNICH		0xE2529ACFE99A	0x959094C5D44C		0 0		EXECUTE	master	0	0
2019-02-04 08:00:29	Cursor	140	Microsoft Dynar	AMELNICH	UA-TS02	UAIAMELNICH		0x9D6B58E2B06E	0x0E2891A02B1C		0 0		EXECUTE	master	0	0
2019-02-04 08:00:29	Cursor	140	Microsoft Dynar	AMELNICH	UA-TS02	UAIAMELNICH		0x37AF90DCC2D1	0x7AD231F61FF		0 0		EXECUTE	master	0.026	0.026
2019-02-04 08:00:29	Cursor	140	Microsoft Dynar	AMELNICH	UA-TS02	UAIAMELNICH		0xB51B7B73A4E74	0x6F8F3E1F97A		0 0		EXECUTE	master	0	0

In addition, information can be viewed in the form of a graph.



Locks

Contains information about locks occurring in a given SQL instance.

Online Locks - allowing for an analysis of current locks in an instance or a specific database


Locks history - allowing for tracking locks in time.

Online Locked Objects - showing a list of objects on which locks are currently installed.



After selecting the session, you can view additional information such as:

- Text of the query
- Session parameters
- Transaction type
- Query identifier
- Status
- Lock type

SQL STATEMENT FOR SESSION SID: 201	
SELECT TOP 1 NULL FROM "Navision UA"."dbo"."Inter Cars UA\$No_Series Line" WITH (UPDLOCK, ROWLOCK) WHERE (("Series Code"=@P1)) AND (("Starting Date">=@P2 AND "Starting Date"<=@P3))	
SESSION DETAILS	
Session Id	201
Blocking Session Id	153
Transaction Isolation Level	Serializable
Transaction Type	Read/write transaction
Transaction State	The transaction is active
Transaction start time	2019-02-04 10:48:16
User name	UAlasu
Command	SELECT
Status	running
Last Request Date	2019-02-04 10:48:16
Last Request Runtime	0
NI User name	asu
HostName	UA-TS05
Program	Microsoft Dynamics NAV Classic client
Wait	LCK_M_RS_U
Database	Navision
Resource Type	KEY
Wait Resource	KEY: 5:72057595053277184 (dd8a5a270380)
Resource Description	keylock hobtId=72057595053277184 dbid=5 id=lock1580e087300 mode=RangeS-U associatedObjectId=72057595053277184
Query Hash	0x9AD4ED024D4E722E 
Query Plan Hash	0xF602A6A0BFF83C95

Parameters

Allows you to view and report change histories for:

- Instance parameters
- Database parameters
- SQL instance settings

The window presents the current status of parameters and their changes over time.

Databases Parameters Overview				
Databases Parameters History				
All databases ▾	Param name	status	Param value	<input type="text"/>
Refresh				
PARAMETERS LIST S				
Instance type	Instance	Database	Param name	Param value
Not specified	CRMSQL31	MSCRM	Status	ONLINE
Not specified	CRMSQL31	IT	Status	ONLINE
Not specified	CRMSQL31	master	Status	ONLINE
Not specified	CRMSQL31	model	Status	ONLINE
Not specified	CRMSQL31	MSCRM_CONFIG	Status	ONLINE
Not specified	CRMSQL31	msdb	Status	ONLINE
Not specified	CRMSQL31	ReportServer	Status	ONLINE
Not specified	CRMSQL31	ReportServerTempDB	Status	ONLINE
Not specified	CRMSQL31	tempdb	Status	ONLINE
Not specified	CRMSQL31	test_MSCRM	Status	OFFLINE
Not specified	CRMSQL31	testmirror	Status	ONLINE
HISTORY FOR SELECTED PARAMETER				
Date change			Param value	
2019-01-27 07:46:34			ONLINE	
2019-01-27 07:31:21			RESTORING	
2018-08-22 10:39:32			ONLINE	
2018-08-22 10:24:19			RESTORING	

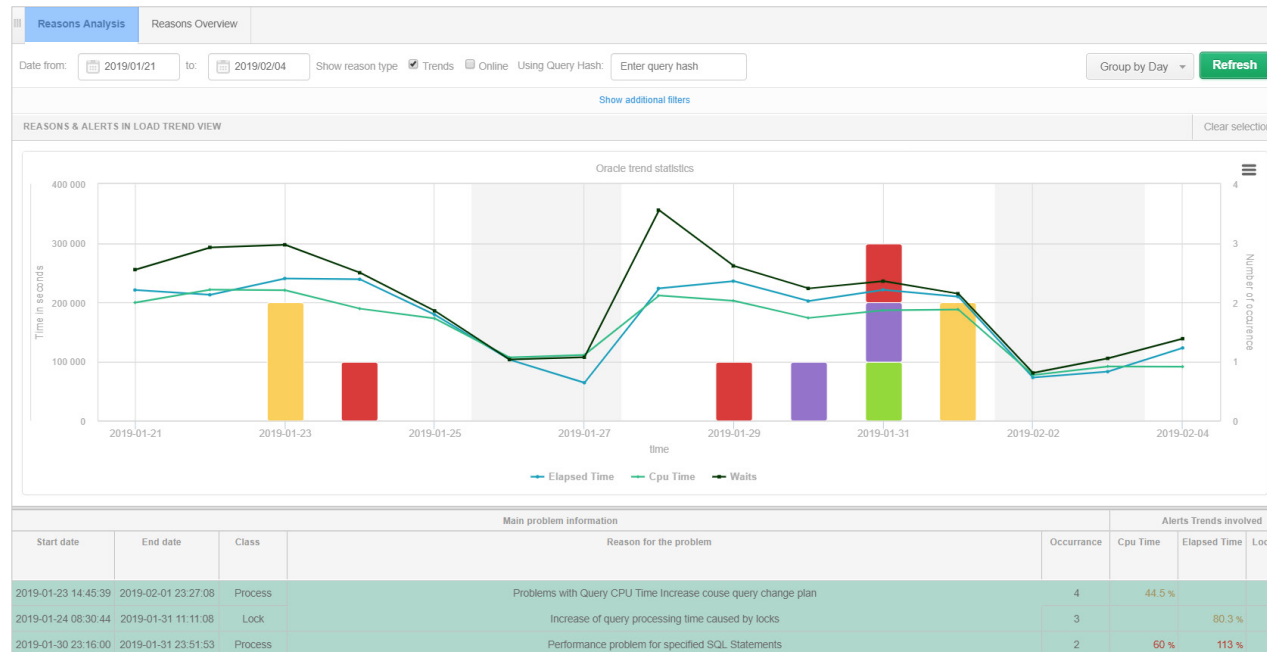
Anomaly Monitor

This module contains information about problems affecting database performance.

Information is available from the level of the monitored SQL instance.

Two types of Alerting:

- Online
- Trends



Grouped by the reasons for their creation and their impact on the given statistics in a database.

Presented in detail for a given period of time.

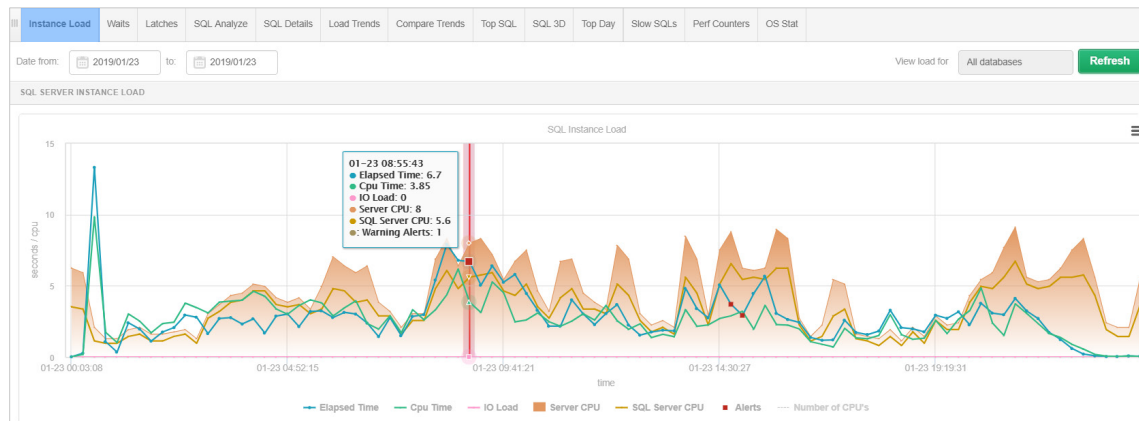
Reasons Occurance Statistics		Alerts Details	
REASONS CHARACTERISTIC BETWEEN 2019-01-23 14:45:39 - 2019-02-01 23:27:08 FOR PROBLEMS WITH QUERY CPU TIME INCREASE COUSE QUERY CHANGE PLAN			
Start date	End date	Snapshots occurrence	Problem duration rounded to snap intervals [PER 30: 5S]
2019-01-23 14:45:39	2019-01-23 15:00:52	2	00:30:13
2019-02-01 23:11:55	2019-02-01 23:27:08	2	00:30:13

Main problem information				Alerts Trends involved		
Start date	End date	Class	Reason for the problem	Occurrence	Cpu Time	Elapsed Time
2019-01-23 14:45:39	2019-02-01 23:27:08	Process	Problems with Query CPU Time Increase cause query change plan	4	44.5 %	
2019-01-24 08:30:44	2019-01-31 11:11:08	Lock	Increase of query processing time caused by locks	3		80.3 %
2019-01-30 23:16:00	2019-01-31 23:51:53	Process	Performance problem for specified SQL Statements	2	60 %	113 %
2019-01-31 23:51:53	2019-01-31 23:51:53	Process	Problems cause Query CPU Time Increase	1	45 %	

Reasons Occurance Statistics		Alerts Details		
LIST OF ALERTS GENERATED BETWEEN 2019-01-23 14:45:39 - 2019-02-01 23:27:08 FOR REASON PROBLEMS WITH QUERY CPU TIME INCREASE COUSE QUERY CHANGE PLAN				
Logdate	Level	Alert name	Query Hash	Message
2019-01-23 14:45:39	Critical	Cpu Time per 1 exec	0x702B5419AFE8B487 +	Alert Type: Sql Query, The measured statistic value is 24.2 times higher than allowed maximum , Statement query hash: 0x702B5419AFE8B487 + , Statistics: Cpu Time per 1 exec, Last value: 10.0 s, History value: 0.3974 s , Faster plan found: 0x62D99E1873C80A5F , actual plan: 0x11CBAAD96C9B92B9. Statistic difference: 0.1974 vs. 10.0 s
2019-01-23 14:45:39	Critical	Cpu Time	0x702B5419AFE8B487 +	Alert Type: Sql Query, The measured statistic value is 34.4 times higher than allowed maximum , Statement query hash: 0x702B5419AFE8B487 + , Statistics: Cpu Time, Last value: 80.3 s, History value: 2.27 s , Faster plan found: 0x62D99E1873C80A5F , actual plan: 0x11CBAAD96C9B92B9. Statistic difference: 1.22 vs. 80.3 s
2019-01-23 14:45:39	Warning	Cpu Time		Alert Type: Load Trends, The measured statistic value is 34 % higher than average , Last value: 2628 s, Reference history value: 1966 s
2019-01-23 15:00:52	Critical	Cpu Time per 1 exec	0x9197BF61F2C01B08 +	Alert Type: Sql Query, The measured statistic value is 16.1 times higher than allowed maximum , Statement query hash: 0x9197BF61F2C01B08 + , Statistics: Cpu Time per 1 exec, Last value: 4.80 s, History value: 0.2800 s , Faster plan found: 0x76EC985754AC27EE , actual plan: 0xBF245366BF6C5ED2. Statistic difference: 0.1752 vs. 4.80 s

Anomaly Monitor - Instance Load

Information about Alerts is also visible on the chart on the Instance Load tab.



Sample Alert informing about a change of the execution plan:

SNAPSHOT OF ALERTS GENERATED WITHIN 15 MINUTES AT 2019-01-23 14:45:39		
Logdate	Reason name	
2019-01-23 14:45:45	Problems with Query CPU Time Increase cause query change plan	
	Cpu Time per 1 exec	Alert Type: Sql Query. The measured statistic value is 24.2 times higher than allowed maximum , Statement query hash: 0x702B5419AFE8B487 + , Statistics: Cpu Time per 1 exec, Last value: 10.0 s, History value: 0.3974 s , Faster plan found: 0x62D99E1873C80A5F , actual plan: 0x11CBAAAD96C9B92B9. Statistic difference: 0.1974 vs. 10.0 s
	Cpu Time	Alert Type: Sql Query. The measured statistic value is 34.4 times higher than allowed maximum , Statement query hash: 0x702B5419AFE8B487 + , Statistics: Cpu Time, Last value: 80.3 s, History value: 2.27 s , Faster plan found: 0x62D99E1873C80A5F , actual plan: 0x11CBAAAD96C9B92B9. Statistic difference: 1.22 vs. 80.3 s

Anomaly Monitor - Configuration

Configuration and alert definitions are available in the menu:

[Configuration > Alert settings](#)

- [Setting the mailbox](#)

The screenshot shows the 'Mail settings' configuration page in the DBPLUS application. The left sidebar contains a menu with options: Dashboard, Instance Analysis, Space monitor, Accounts, Backups, Parameters, Reports, Servers monitor, Configuration (selected), Settings, Servers, References lists, Security, Alert settings, and Help. The 'Configuration' section is expanded, showing 'Settings' as the active sub-item. The main content area has a blue header with 'DBPlus Better performance for MSSQL' and a navigation bar with 'Mail settings' (active), 'General settings', 'Alerts definition', 'Reasons & Problems definition', and 'Events subscription'. Below the navigation bar is a yellow banner with a lightbulb icon and the text 'List of email configuration parameters.' The configuration form includes: a checked checkbox for 'Send alerts by mail'; a 'Mail Agent Interval' dropdown set to 'once per 5 minutes'; an 'SMTP Mail server' text field with 'pop3-dbpluskonto.ogicom.pl'; a 'Port' text field with '587'; a 'Sender email address' text field with 'alert@dbplus.pl'; a checked checkbox for 'smtp authentication'; a 'Username' text field with 'alert@dbplus.pl'; a 'Password' text field with masked characters; an unchecked checkbox for 'enable SSL'; a 'Test mail address' text field; a 'Send test mail' button; and a green 'Save mail settings' button at the bottom.

Anomaly Monitor - Configuration

Configuration and alert definitions are available in the menu:

[Configuration > Alert settings](#)

- General settings

Contain parameter configurations that control the operation of the alert module.

DBPlus Better performance for MSSQL

Dashboard | Mail settings | **General settings** | Alerts definition | Reasons & Problems definition | Events subscription

Instance Analysis

Space monitor

Accounts

Backups

Parameters

Reports

Servers monitor

Configuration

- Settings
- Servers
- References lists
- Security
- Alert settings**

Help

Version: 2018.4.2

Elapsed Time greater than seconds. Alerts would only be ran if the elapsed time for all sql statements would take at least seconds in duration of 15 minutes (snapshot time)

History Days ☒ Mon ☒ Tue ☒ Wed ☒ Thu ☒ Fri ☐ Sat ☐ Sun
We recommend to select working days only

Number of Days Back in History How long history would be included in snapshot alerts calculation

Minimal History Days Minimal number of days required to calculate trend estimations. It lets to avoid random alerts when instance monitoring has just started

STATEMENTS SETTINGS

Number of Top Queries to check chosen by How many top statements from each snapshot would be checked by Alert Engine

Number of Days Back in History How long statement history would be considered in snapshot alerts calculation

WAIT EVENTS SETTINGS

Number of Top events to check

Number of Days Back in History How long wait history would be considered in snapshot alerts calculation

Save settings

Anomaly Monitor - How does it work?

The Anomaly Monitor is based on gathering information about the statistics available in the SQL instance.

Alert definitions

- a threshold alarm value is defined for each statistic.

Problem definition

- a set of rules based on predefined Alerts.

Based on historical information, threshold exceeding events are generated.

DBPLUS Better performance for MSSQL

Mail settings General settings **Alerts definition** Reasons & Problems definition Events subscription

Refresh

List of alerts which apply to all sql instances. Please be aware that Online alerts are calculated every 15 seconds other alerts every 15 minutes. Any changes in below lists are recognizes by DBPLUS Catcher monitoring service

ALERTS CONFIGURATION Add new alert

Alert type	Alert description	Enabled	Level value WARNING	Level value CRITICAL
Online	Sqli Instance CPU utilization	<input checked="" type="checkbox"/>	200 %	400 %
Load Trends	Elapsed Time	<input checked="" type="checkbox"/>	50 %	100 %
Load Trends	Wait Time	<input checked="" type="checkbox"/>	50 %	100 %
Load Trends	Lock Time	<input checked="" type="checkbox"/>	20 %	50 %
Load Trends	Cpu Time	<input checked="" type="checkbox"/>	30 %	60 %
Sqli Query	New Statement Elapsed Time	<input checked="" type="checkbox"/>	20 %	50 %
Sqli Query	New Statement Cpu Time	<input checked="" type="checkbox"/>	20 %	50 %
Sqli Query	Elapsed Time per 1 exec (for plan changes only)	<input checked="" type="checkbox"/>	50 %	100 %

List of alerts on the instance level which are specific for particular database. Below settings overwrite main configuration Those alerts which are marked in light gray color, are inherited from main configuration

INSTANCE ALERTS CONFIGURATION - PLEASE SELECT AN INSTANCE CRMSQL31 Add new alert Restore defaults

Alert type	Alert description	Enabled	Override	Level value WARNING	Level value CRITICAL
Online	Alert if database is not available	<input checked="" type="checkbox"/>	<input type="checkbox"/>		
Online	Total Waits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	200 %	400 %

Anomaly Monitor - How does it work?

The alert definition consists of:

Selecting the alert type:

- Online
- I/O Stats
- Load Trends
- SQL Query

The screenshot shows the 'ALERT DEFINITION' dialog box. At the top, there's a title bar with a close button. Below it, the 'Alert' type is set to 'Sql Query' and 'Elapsed Time'. The 'Enabled' checkbox is checked. The dialog has three tabs: 'Alert Levels' (selected), 'Notifications & Conditions', and 'Other settings'. Under 'Alert Levels', there are two rows of settings. The first row shows a slider set to 50, with the text 'Set level to WARNING when Elapsed Time is above' and '% of history average'. The second row shows a slider set to 100, with the text 'Set level to CRITICAL when Elapsed Time is above' and '% of history average'. There is also a checkbox for 'Show Plan Changes Only'. At the bottom, there are 'OK' and 'Cancel' buttons.

Alert	Alert Type	Enabled
Sql Query	Elapsed Time	<input checked="" type="checkbox"/>

Alert Levels	Notifications & Conditions	Other settings
Set level to WARNING when Elapsed Time is above <input type="text" value="50"/> % of history average		
Set level to CRITICAL when Elapsed Time is above <input type="text" value="100"/> % of history average		
<input type="checkbox"/> Show Plan Changes Only		

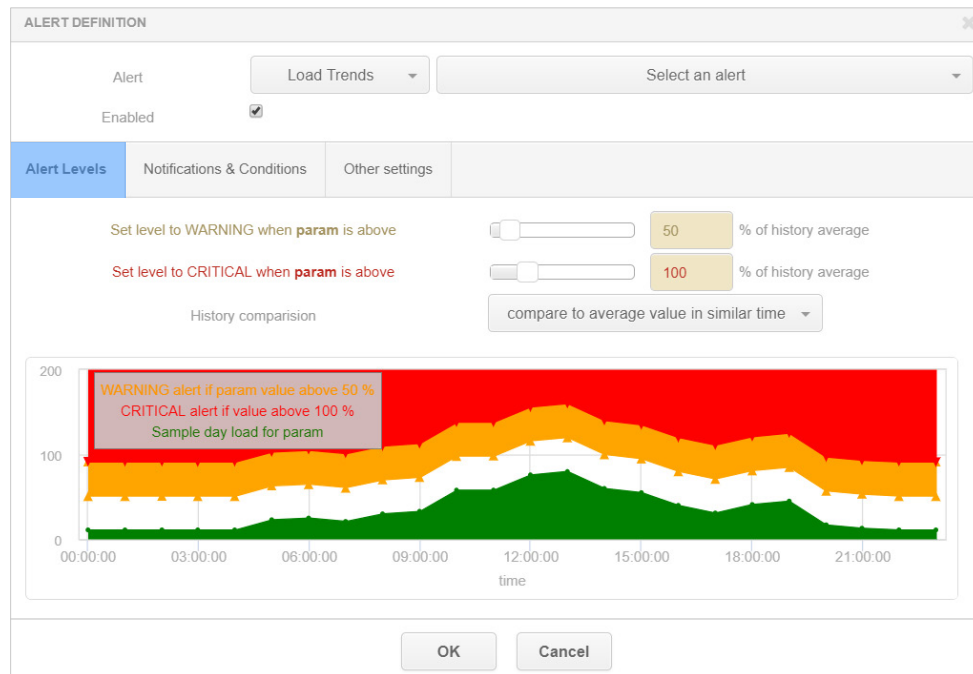
OK Cancel

Anomaly Monitor - How does it work?

The alert definition consists of:

Determining the alarm threshold value:

- **WARNING**/**CRITICAL**



Anomaly Monitor - How does it work?

The alert definition consists of:

Setting additional conditions:

- Value below which the alert does not appear
- Value above which the alert will always occur
- What impact the query generates (only SQL Query)

The screenshot shows the 'ALERT DEFINITION' dialog box with the 'Notifications & Conditions' tab selected. The dialog is divided into several sections. At the top, there are dropdowns for 'Alert' (set to 'Sql Query') and 'Elapsed Time'. Below these is an 'Enabled' checkbox which is checked. The main area is divided into three tabs: 'Alert Levels', 'Notifications & Conditions' (active), and 'Other settings'. Under 'Notifications & Conditions', there is a section for 'Alert Calculation Interval' set to 'once per 15 minutes'. Below this is a 'Filter conditions' section. It contains three rows of conditions: 1. 'Use Low Constant Value' with a text input '500' and the text 's. Every alert with value **below** entered will be **skipped**'. 2. 'Use High Constant Value' with an empty text input and the text 's. Every alert with value **above** entered will be **shown**'. 3. 'Query impact on load is above' with a slider and a text input '10' followed by a '%' sign. At the bottom of the dialog are 'OK' and 'Cancel' buttons.

ALERT DEFINITION	
Alert	Sql Query
Elapsed Time	
Enabled	<input checked="" type="checkbox"/>
Alert Levels	Notifications & Conditions
Other settings	
Alert Calculation Interval	once per 15 minutes
Filter conditions	
Use Low Constant Value	500 s. Every alert with value below entered will be skipped
Use High Constant Value	<input type="text"/> s. Every alert with value above entered will be shown
Query impact on load is above	<input type="range"/> 10 %
OK Cancel	

Anomaly Monitor - problem definitions

Defining the problem consists of indicating the cause of the problem. It can be determined by configuring a rule consisting of predefined alert definitions.

Configuration consists of:

- Giving the name of the problem
- Determining the class of the problem

DBPLUS better performance for MySQL

Mail settings General settings Alerts definition **Reasons & Problems definition** Events subscription

Refresh

List of performance problems which apply to all oracle databases. Please be aware that Online issues are calculated every 30 seconds other problems every 15 minutes. Any changes in below lists are recognizes by DBPLUS Catcher monitoring service up to 15 minutes

REASON & PROBLEMS CONFIGURATION Add new definition

Type	Class	Reason/Problem description	Enabled	
Trends	Lock	Problem cause locking waits	<input checked="" type="checkbox"/>	Trends Lock Time AND Trends Wait Event Time
Trends	I/O	Problem with Disk reads increase cause query change plan	<input checked="" type="checkbox"/>	(Trends Cpu Time AND Trends Elapsed Time) AND ((SQLQuery Cpu Time (for plan changes only) AND SQLQuery Cpu Time per 1 exec (for plan changes only)))
Trends	Process	Problem with Query CPU Time Increase cause query change plan	<input checked="" type="checkbox"/>	Trends Cpu Time AND (SQLQuery Cpu Time per 1 exec (for plan changes only) OR (SQLQuery Cpu Time (for plan changes only) AND SQLQuery Cpu Time per 1 exec))
Trends	Process	Problem cause Query CPU Time Increase	<input checked="" type="checkbox"/>	Trends Cpu Time AND (SQLQuery Cpu Time AND SQLQuery Cpu Time per 1 exec)
Online	Online	Increase of waits events (cause of Locks) on database in last 3 minutes	<input checked="" type="checkbox"/>	Online Lock waits
Trends	Other	Problem cause wait: PAGEIO LATCH_SH	<input checked="" type="checkbox"/>	Trends Wait Time AND Trends Wait Event Time - [PAGEIO LATCH_SH]
Trends	I/O	Problem cause increase Executions and Disk Reads	<input checked="" type="checkbox"/>	(Trends Cpu Time AND Trends Elapsed Time) AND ((SQLQuery Cpu Time AND SQLQuery Cpu Time per 1 exec AND SQLQuery Disk reads AND SQLQuery Disk reads per 1 exec))
Trends	I/O	Problem cause Disk reads increase	<input checked="" type="checkbox"/>	((SQLQuery Cpu Time AND SQLQuery Cpu Time per 1 exec AND SQLQuery Disk reads AND NOT SQLQuery Execution) OR (SQLQuery Cpu Time AND SQLQuery Disk reads))

List of performance problems on the instance level which are specific for particular database. Below settings overwrite main configuration. Those lines which are marked in light gray color, are inherited from main configuration

INSTANCE PROBLEM CONFIGURATION - PLEASE SELECT AN INSTANCE SQL12-08B122 Add new definition Restore defaults

Type	Reason/Problem description	Enabled	Override	
Trends	Problem cause locking waits	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Trends Lock Time AND Trends Wait Event Time
Trends	Problem with Disk reads increase cause query change plan	<input checked="" type="checkbox"/>	<input type="checkbox"/>	(Trends Cpu Time AND Trends Elapsed Time) AND ((SQLQuery Cpu Time (for plan changes only) AND SQLQuery Cpu Time per 1 exec (for plan changes only)))

Anomaly Monitor - problem definitions

The next stage of configuration consists of:

- Setting up a set of rules based on the Alert definition

REASON DEFINITION

Reason description: Performance problem for specified SQL Statements cause query change plan

Calculation Type: Based on Trends

Reason Class: Process

Enabled: ☒

Rules & Formulas | Notifications & Conditions

AND OR Add rule Add group

Trends:Elapsed Time Delete

AND OR Add rule Add group Delete

AND OR Add rule Add group Delete

SQLQuery:Elapsed Time (for plan changes only) Delete

SQLQuery:Elapsed Time per 1 exec (for plan changes only) Delete

Rules preview: Trends:Elapsed Time AND ((SQLQuery:Elapsed Time (for plan changes only) AND SQLQuery:Elapsed Time per 1 exec (for plan changes only)) OR SQLQuery:Elapsed Time (for plan changes only)) AND NOT:SQLQuery:Disk reads AND NOT:SQLQuery:Execution

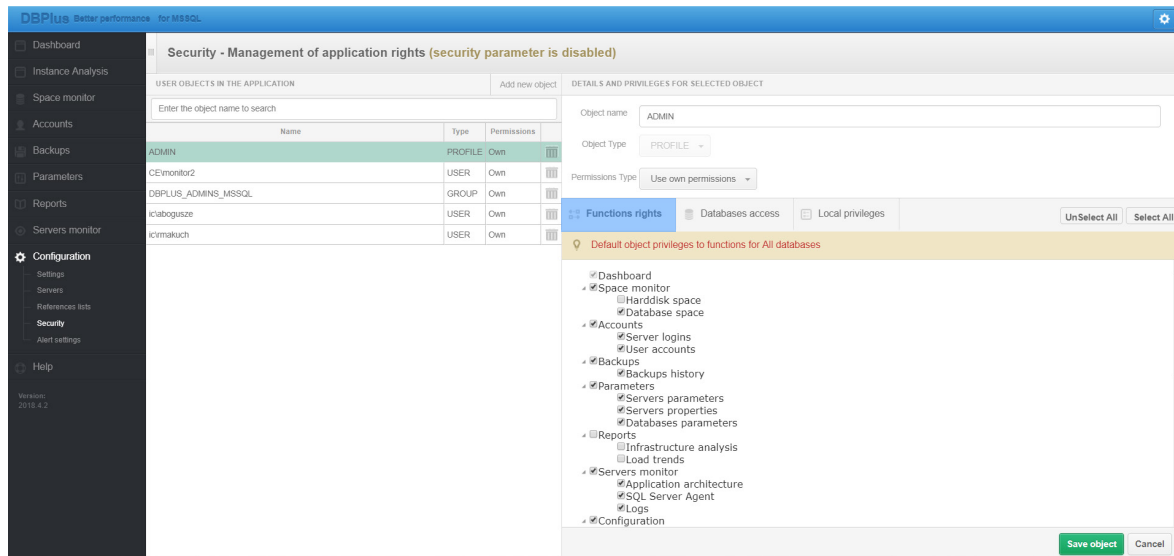
OK Cancel

Access management

It is possible to grant access to individual instances and the screens in the application.

Setting access for:

- **USER**
(Object name: DOMAIN\USER).
- **GROUP:**
 - **Local** (Object name: GROUP NAME)
 - **Domain** (Object name: DOMAIN\USER).
- **PROFILES**
(Object name: PROFILE NAME).



The ability to configure permissions:

- own (use Own permissions)
- inherited (Inherited permissions).

Access management

Own permissions ([Use own permissions](#)).

This type of permission can be granted for each of the three objects ([USER](#), [GROUP](#), [PROFILE](#)).

- We assign permissions to individual functionalities ([Function rights](#)).
- Permissions for individual databases ([Database access](#)).
- [Local privillages](#).

DETAILS AND PRIVILEGES FOR SELECTED OBJECT

Object name

Object Type

Permissions Type

Functions rights

Databases access

Local privileges

📍

 Object access to databases

Access	Database
<input type="checkbox"/>	ALL INSTANCES
<input checked="" type="checkbox"/>	CRMSQL31 on machine CRMSQL31
<input checked="" type="checkbox"/>	SQL01NAV_EE on machine SQL01
<input type="checkbox"/>	SQL01NAV_UA on machine SQL01
<input type="checkbox"/>	SQL01NAV2016_LV on machine SQL01
<input type="checkbox"/>	SQL02NAV2016_BA on machine SQL02
<input type="checkbox"/>	SQL02NAV2016_GR on machine SQL02
<input type="checkbox"/>	SQL02NAV2016_HR on machine SQL02
<input type="checkbox"/>	SQL02NAV2016_MD on machine SQL02

Save object

Cancel

Access management

Inherited permissions (use permissions Inherited from parents).

- This type of permission can be granted for each of the three objects (USER, GROUP, PROFILE).
- When assigning permissions, we always point to the PROFILE for which we have previously defined the permissions.

DETAILS AND PRIVILEGES FOR SELECTED OBJECT

Object name

DESKTOP-HR1BE66\ARTUR BOGUSYEWski

Object Type

USER

Permissions Type

Inherited permissions from parents

Profiles assignment

UnSelect All

Select All

Permissions to inherited from assigned profiles

Access	Profile Name
<input checked="" type="checkbox"/>	ADMIN
<input type="checkbox"/>	USERS_PROFILE

Save object

Cancel

Access management

Access management is set on two levels:

- DBPLUS Configuration Wizard:
Applications settings > Application Options
> Configure
- DBPLUS Performance Monitor:
Configuration > Settings > SECURITY
parameter

Application security

☒ Use windows authentication in access to application

Save configuration Test settings Close

DBPLUS Better performance for ORACLE

Settings Dashboard Icon settings Dashboard Tv Parameters

List of configuration parameters. Please click on the edit button to change parameter value.

Parameter	Value	Description	
SECURITY	ON	Application can work in SECURITY mode set to ON or to OFF. It means that application uses (or doesn't use) user authentication. Setting the SECURITY to on, it requires at least one user created.	<div>Save</div>
DASHBOARD_ANIMATE_PARAMETERS	ON	Setting is valid for DPM dashboard displayed in television mode. Based on it each sql server icon can toggle/animate automatically its parameters like (server cpu, waits, sessions, etc.)	<div>Edit</div>

Version: 2018.4.2
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DBPLUS
better performance

Thank you

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