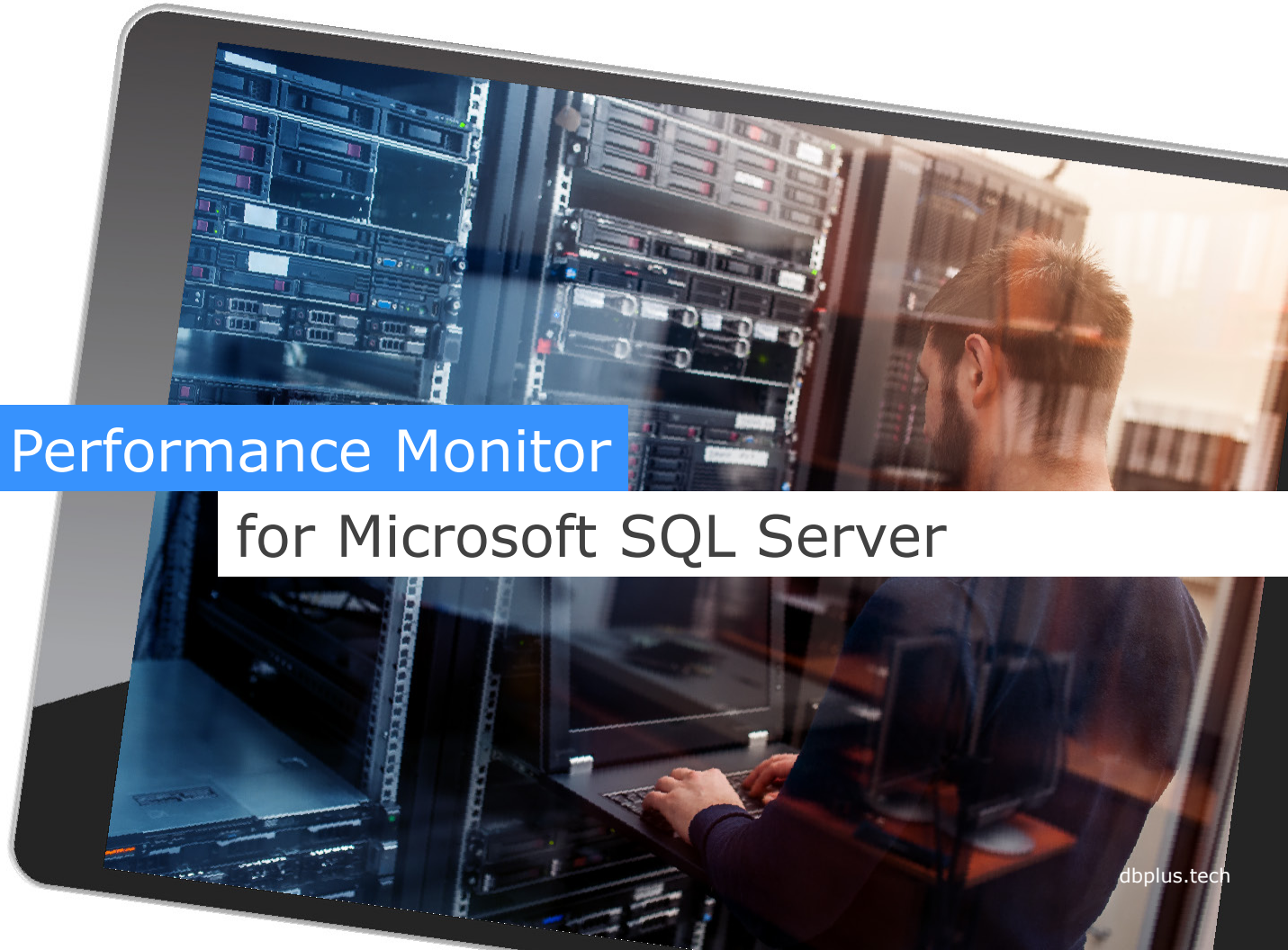
DBPLUS

better performance

Performance Monitor

for Microsoft SQL Server



dbplus.tech

Agenda

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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

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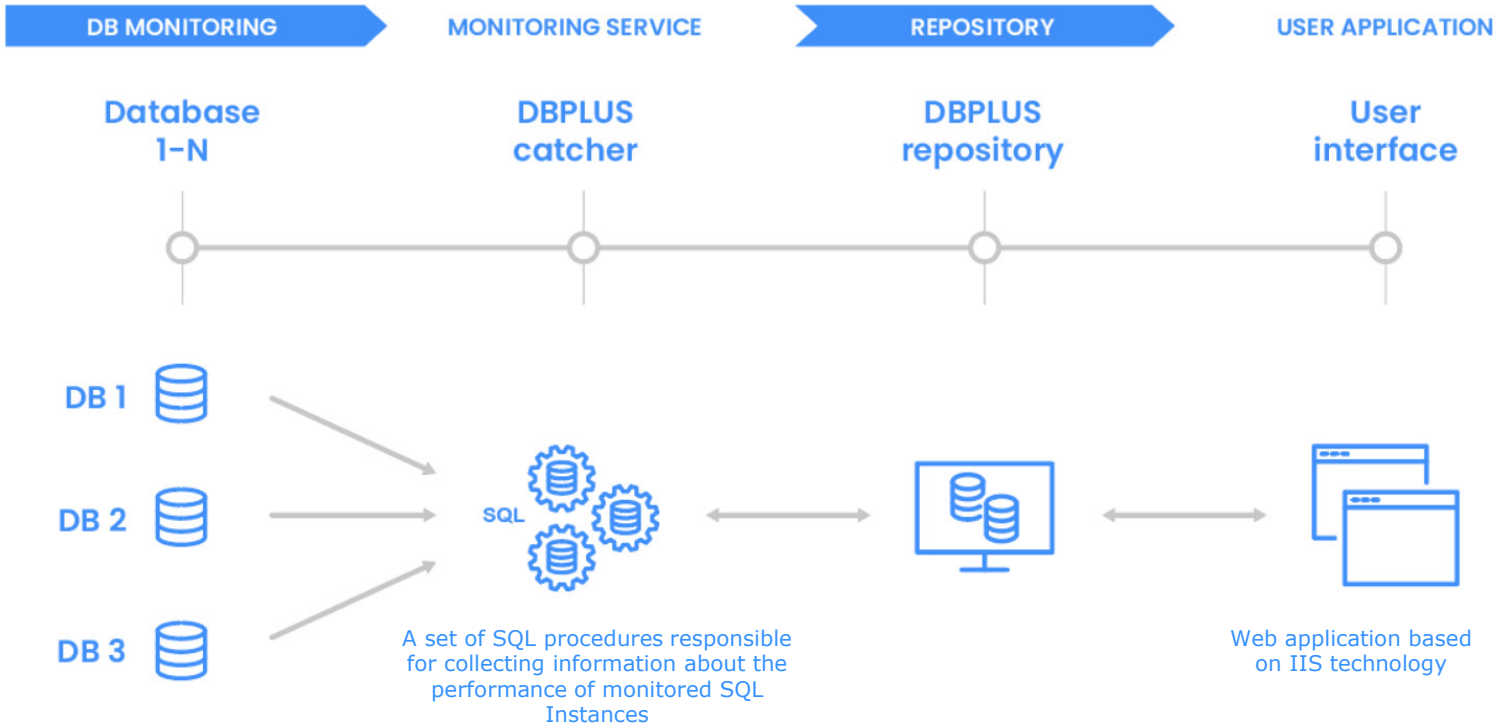

Connecting the database to monitoring

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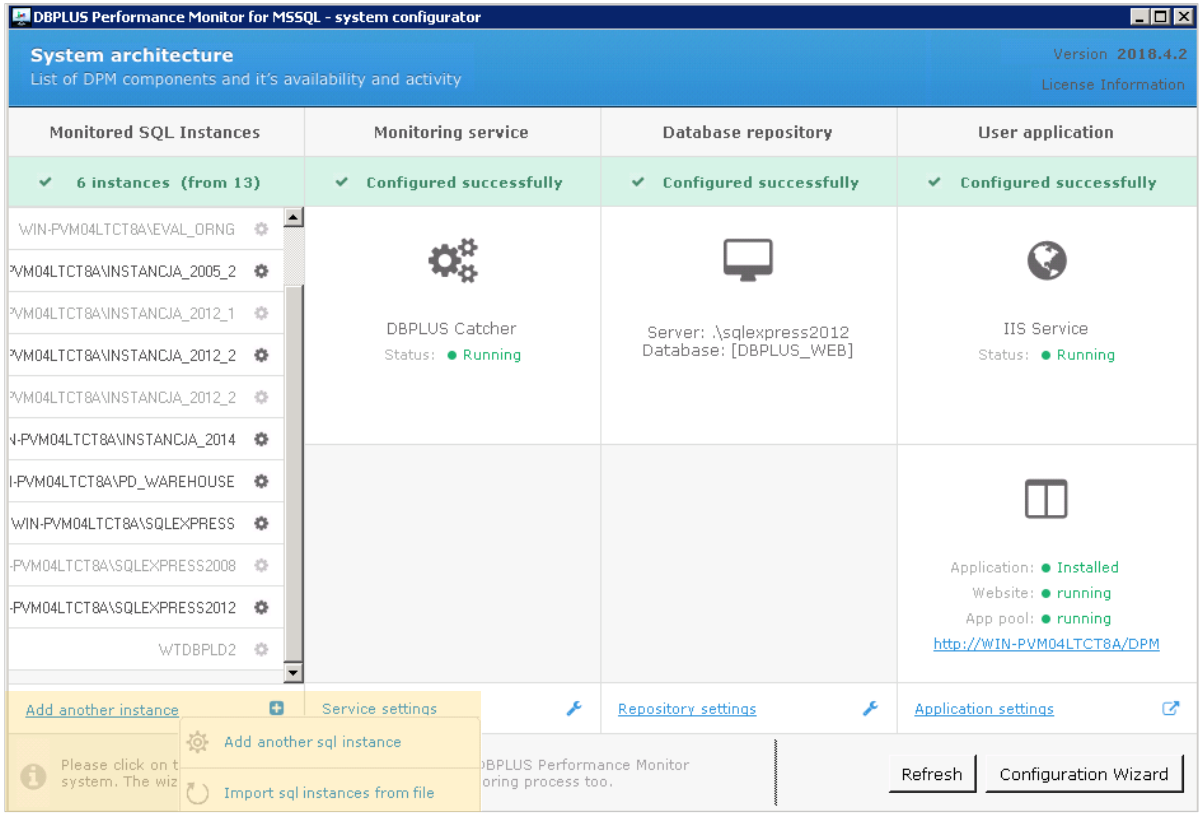
In the main system configurator window (Configuration Wizard), click the [Add Another instance] button.

Two ways to connect the database:

- Manual connection (single)
- Import from file



Connecting the database to monitoring

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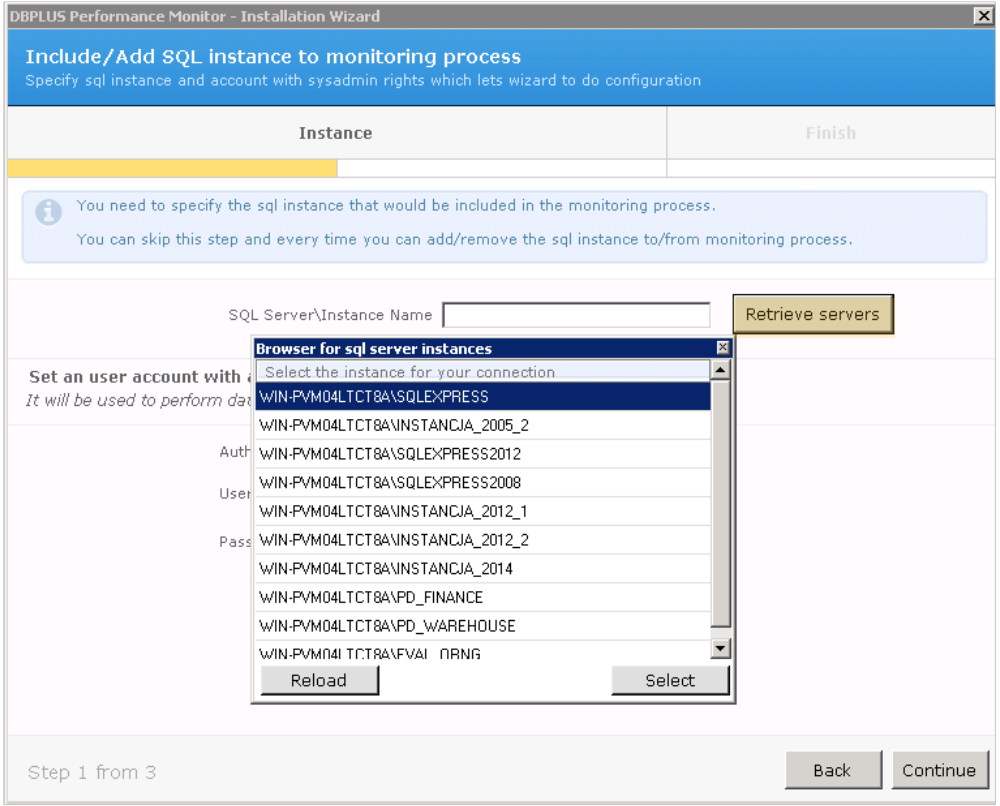
Adding a single database:

- 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

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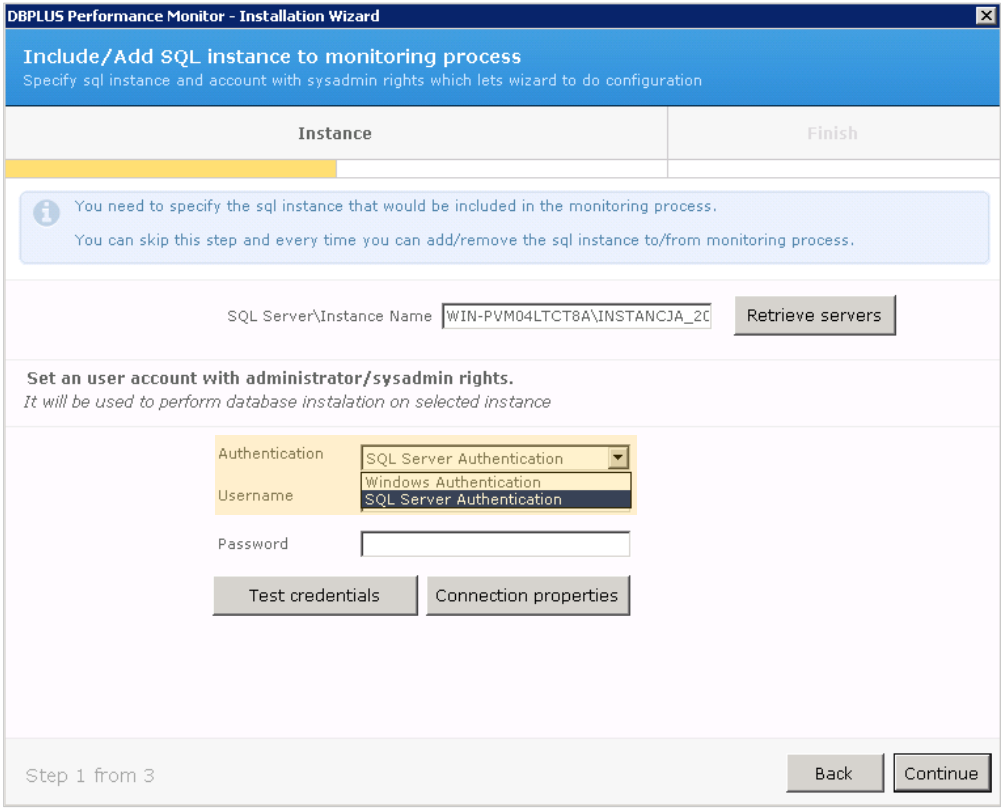
Adding a single database:

- Select an account with administrator rights.

- You can choose to use your Windows account or an SQL Server account.



Connecting the database to monitoring

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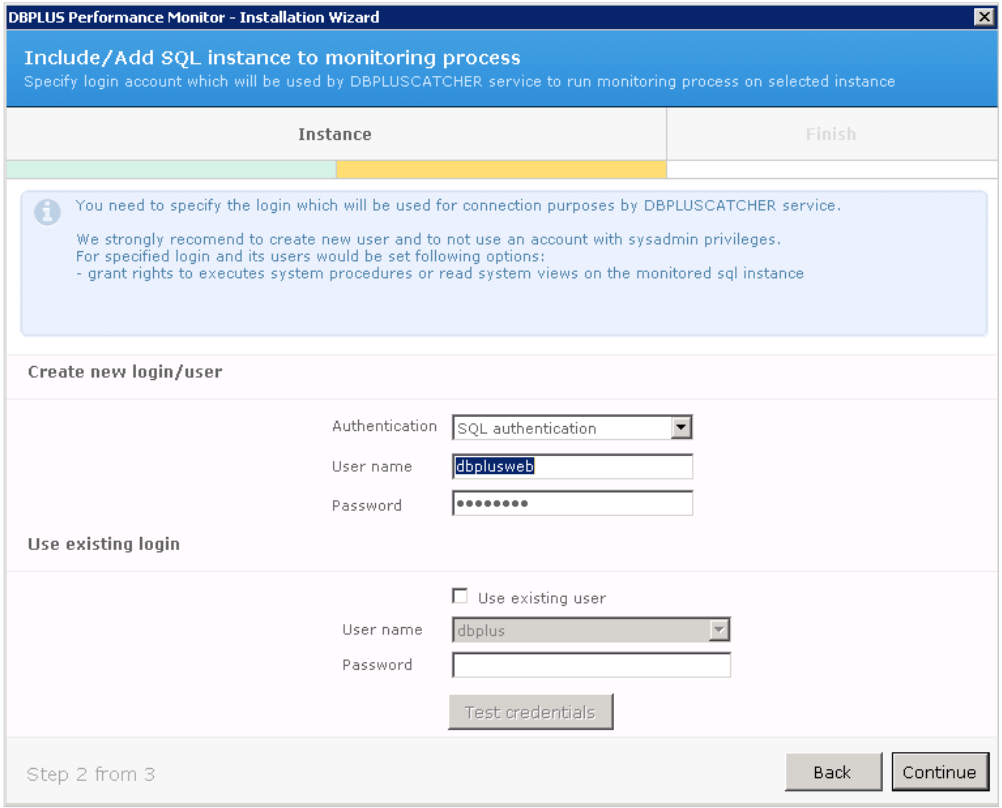
Adding a single database:

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



Connecting the database to monitoring

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Import an instance of SQL from a file:

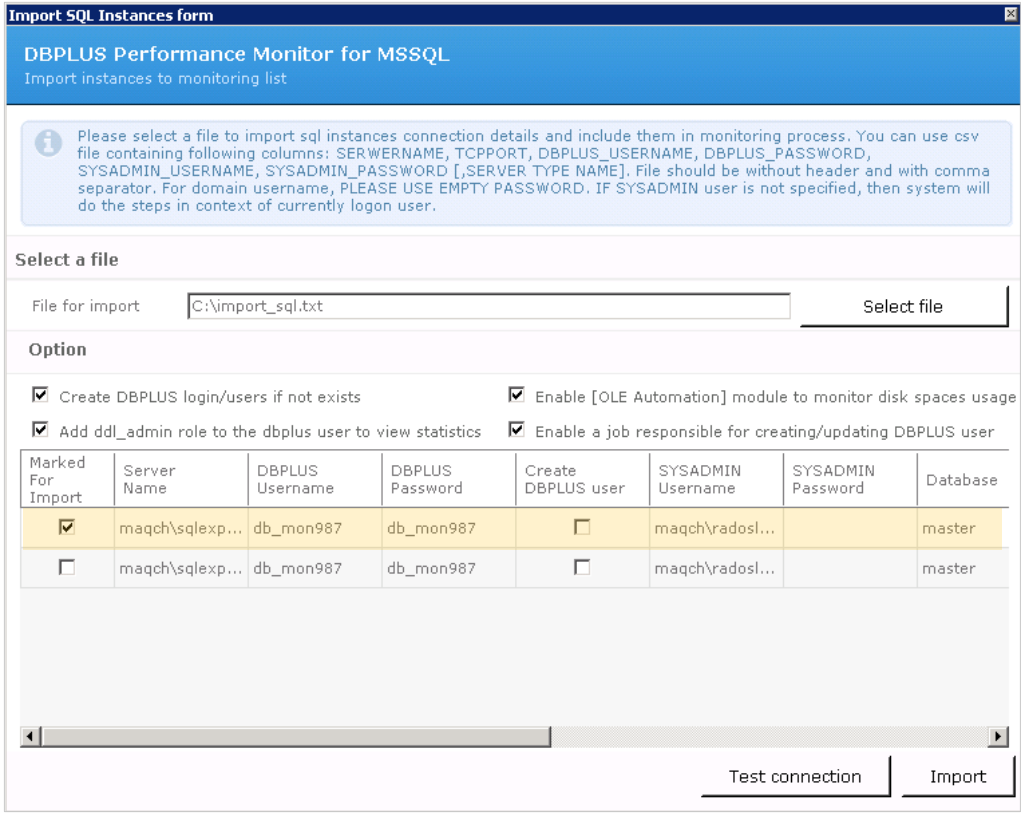
File structure:

- SERVERNAME,TCPPORT,DBPLUS_USERNAME,DBPLUS_PASS,SYSADMIN_LOGIN,SYSADMIN_PASS[,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.



Main functionalities - Table options

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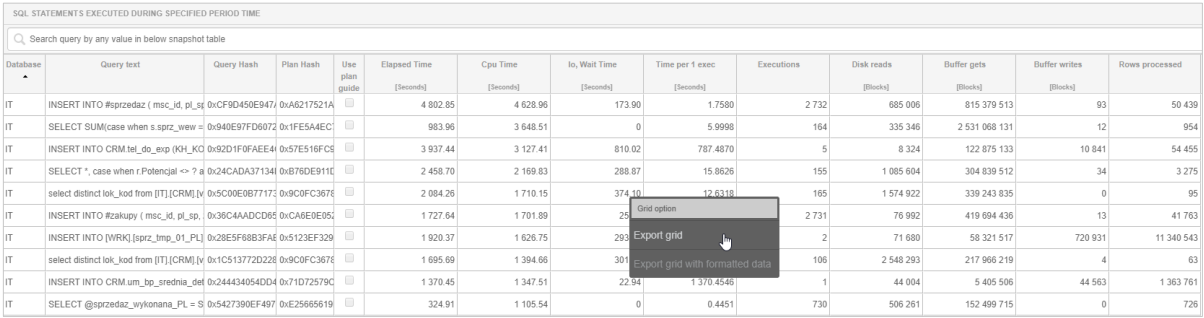
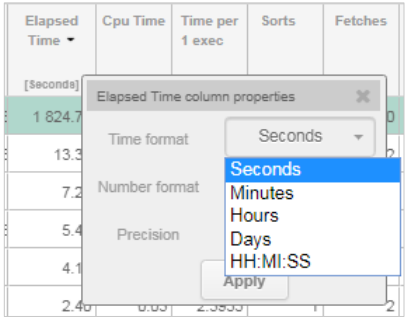
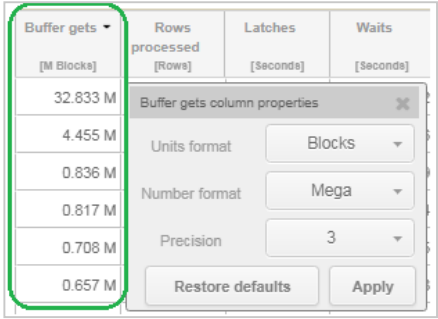
- It is possible to export data to a CSV file



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. **k**ilo, **M**ega, ...
- *determination of decimal place accuracy* of a number





Main functionalities - Table options

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- 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		1 695.69	1 394.66
IT	INSERT INTO CRM.um_bp_srednia_det	0x244434054DD428C5	0x71D72579CFA8797C		1 370.45	1 347.51
IT	SELECT *, case when r.Potencjal <> ? a	0x24CADA37134D6659	0xB76DE911DBF81C26		2 458.70	2 169.83
IT	INSERT INTO [WRK].[sprz_tmp_01_PL]	0x28E5F68B3FAB3453	0x5123EF3299FEF717		1 920.37	1 626.75
IT	INSERT INTO #zakupy (msc_id, pl_sp,	0x36C4AADCD6513A98			1 727.64	1 701.89
IT	SELECT @sprzedaz_wykonana_PL = S	0x5427390EF49767AC			324.91	1 105.54
IT	select distinct lok_kod from [IT].[CRM].[v	0x5C00E0B771731CDE			2 084.26	1 710.15
IT	INSERT INTO CRM.tel_do_exp (KH_KO	0x92D1F0FAEE4C6039			3 937.44	3 127.41
IT	SELECT SUM(case when s.sprz_wew =	0x940E97FD60723258	0x1FE5A4EC79CD59E2		983.96	3 648.51
IT	INSERT INTO #sprzedaz (msc_id, pl_sp	0xCF9D450E947A1DCF	0xA6217521A60841EB		4 802.85	4 628.96

Query: 0x36C4AADCD6513A98
View sql details
Add to query hash list

Click on query hash to analyze Query Perfromance Details

Query Hashes list

- 0xFEE5B3F6329E6C88
- 0x6E736B9D57E5A96B
- 0x788D41A0579D4658
- 0x36C4AADCD6513A98
- 0x28E5F68B3FAB3453
- 0x1C513772D2280FFA
- 0xCF9D450E947A1DCF

Clear list

Main functionalities - Chart options

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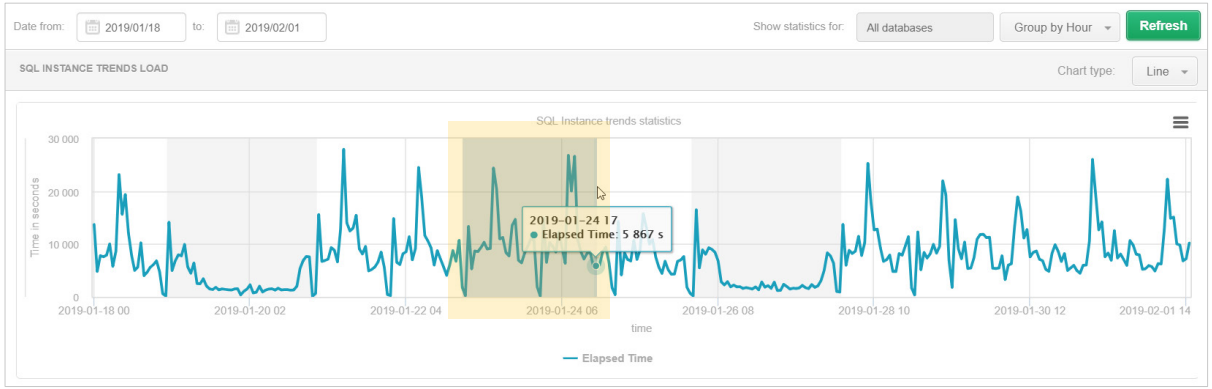
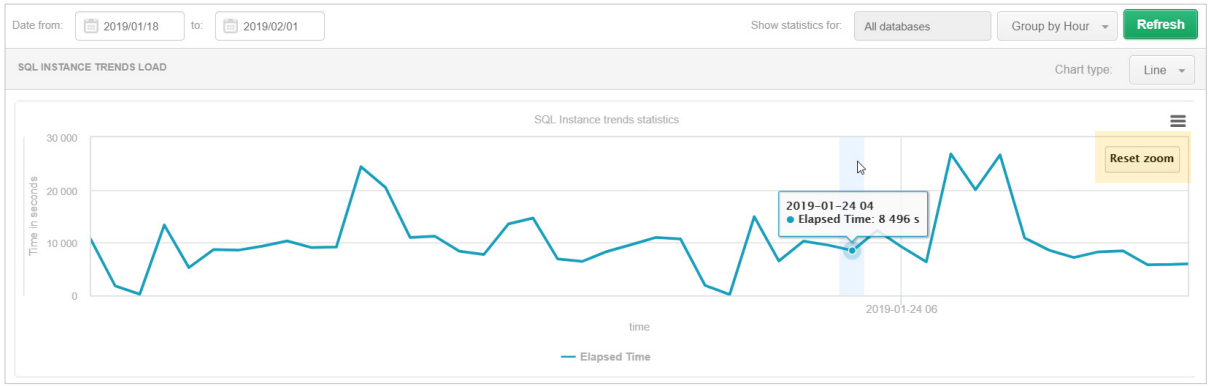
- Zooming in the selected area on the chart



- Option to return to the previous view via [Reset zoom]



Main functionalities - Chart options

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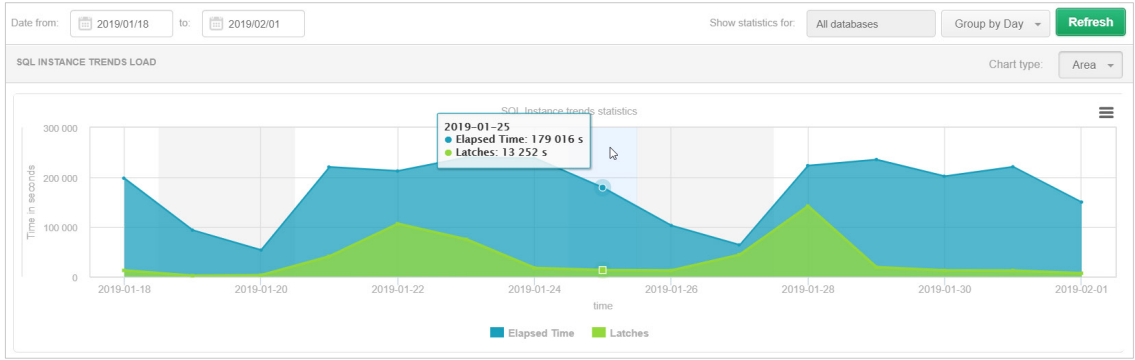
Different types of charts:

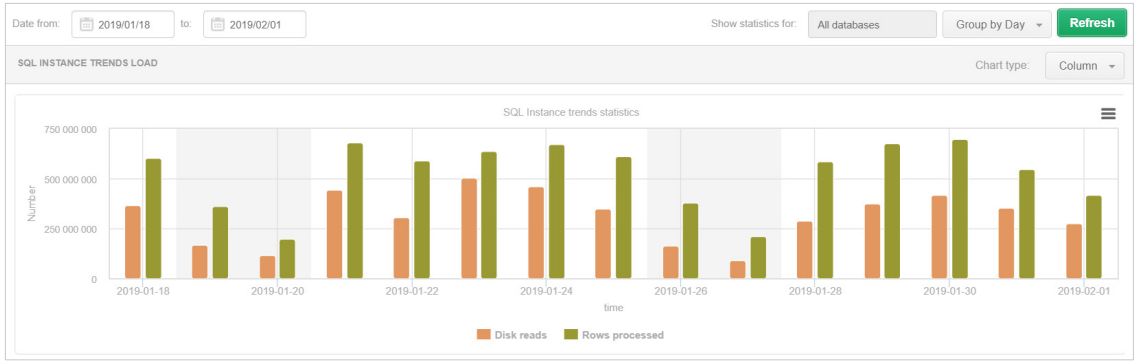
- *Line*
- *Area*
- *Column*

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

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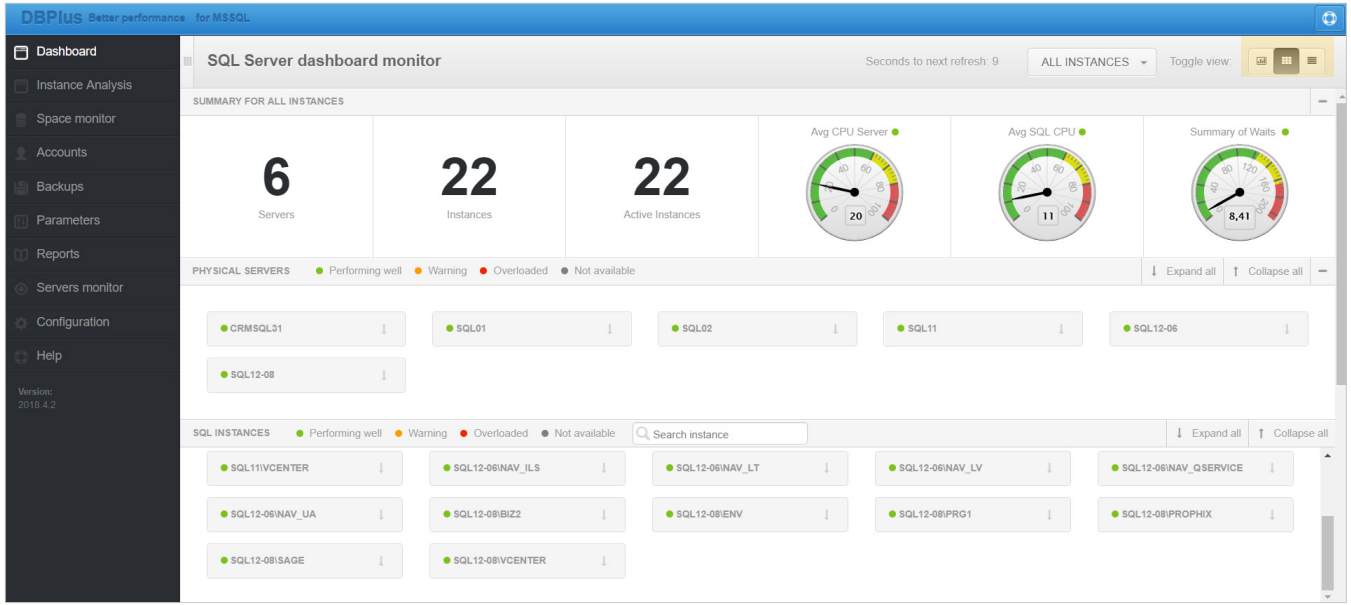
Three different ways of presenting databases:

- *Icons view*



Dashboard - Home screen

DBPLUS
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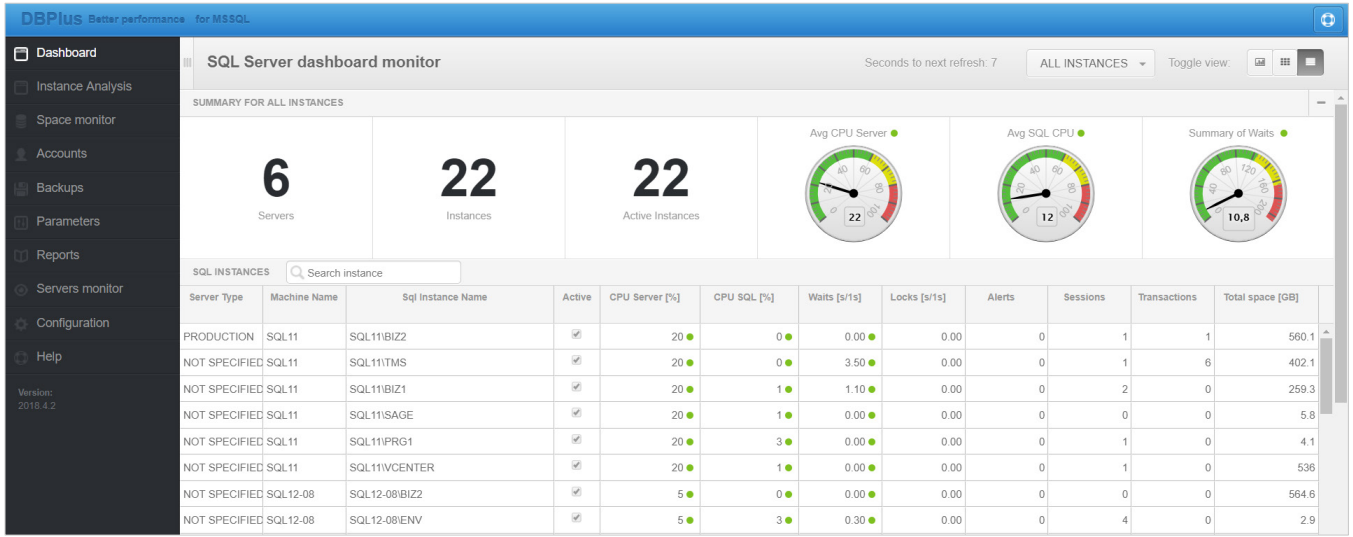
Three different ways of presenting databases:

- *Grid view*



Dashboard - Home screen

DBPLUS
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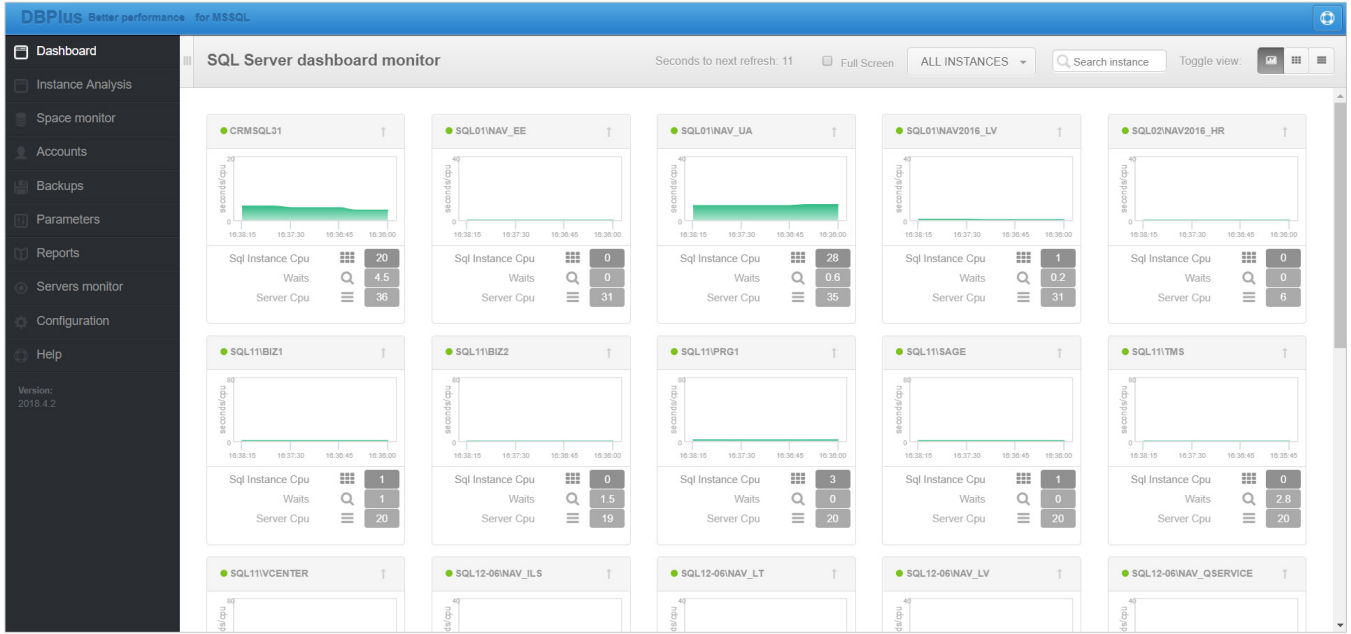
Three different ways of presenting databases:

- *Television view*



Instance Load - details of the SQL instance

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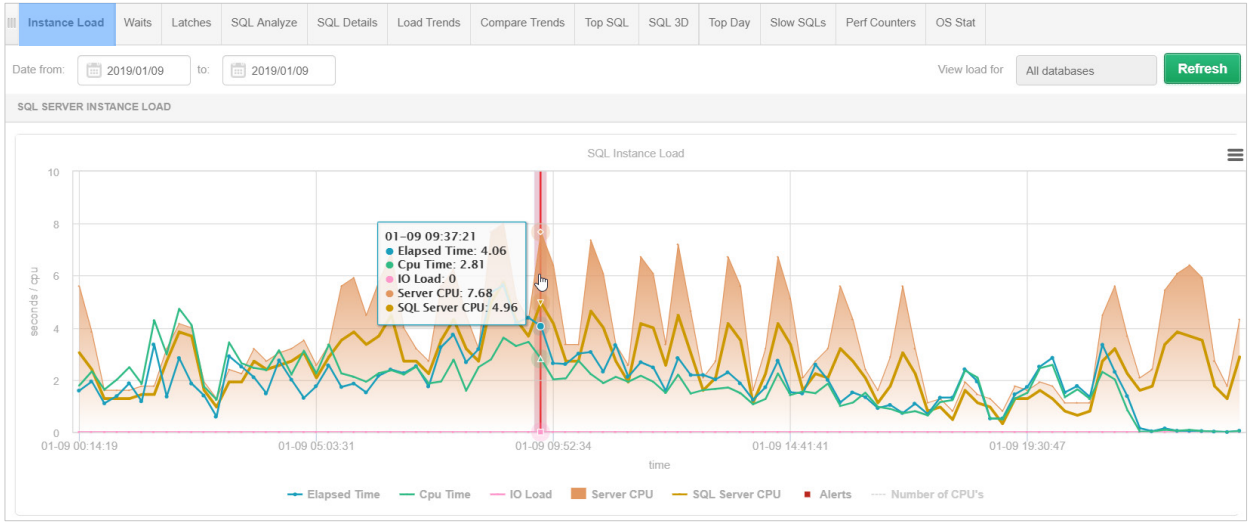
The chart presents information about the basic statistics of the database:

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



Instance Load - details of the SQL instance

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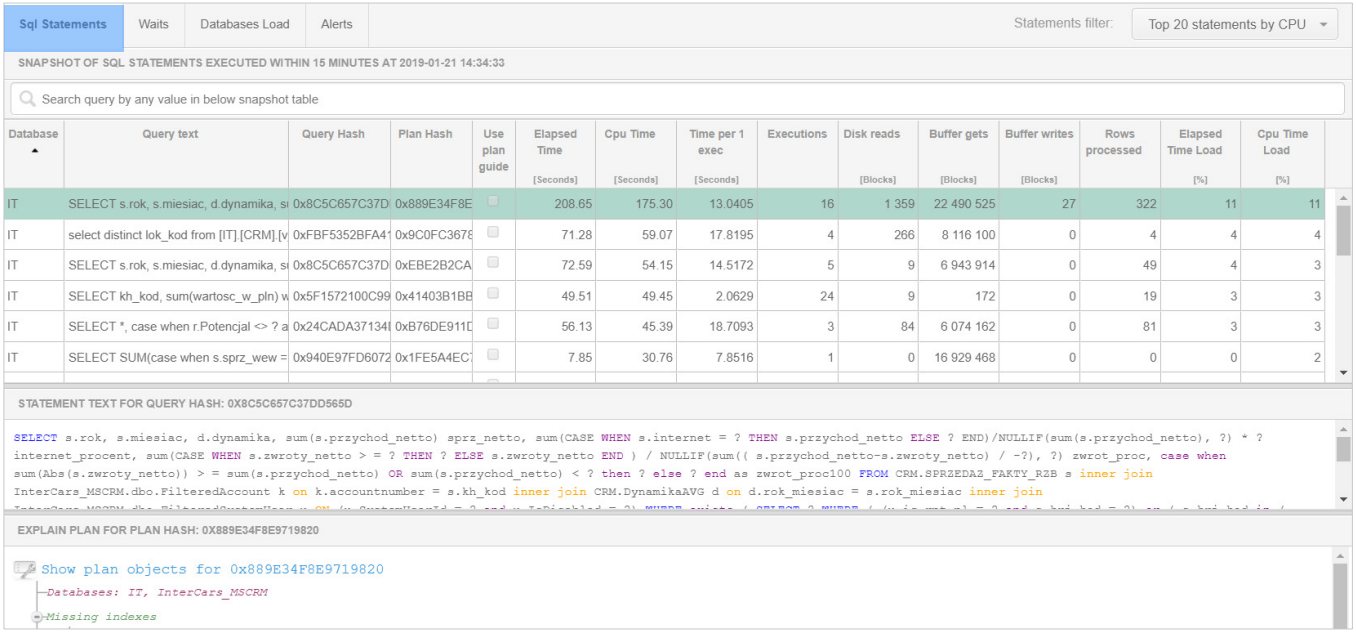
After clicking on a point on the chart, you can find information about:

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



Instance Load - details of the SQL instance

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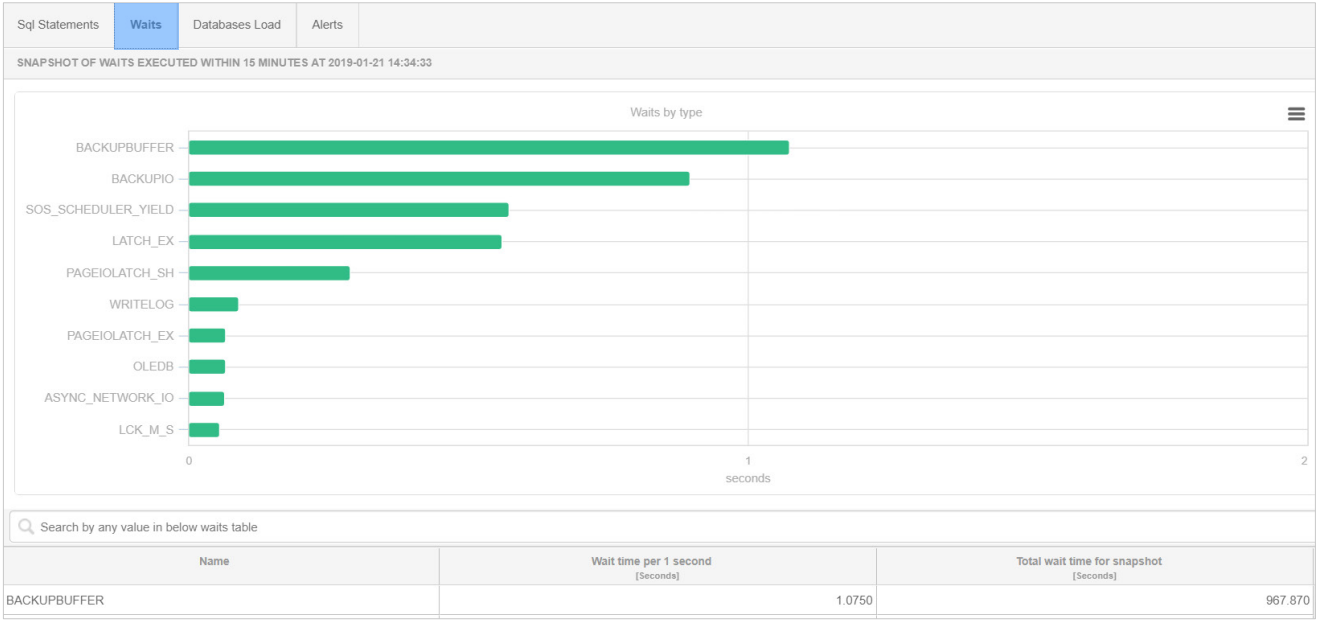
After clicking on a point on the chart, you can find information about:

- The level of individual waits



Instance Load - details of the SQL instance

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

- Load of a particular database on the SQL instance

Database	Elapsed Time [Seconds]	Cpu Time [Seconds]	Executions	Disk reads [Blocks]	Buffer gets [Blocks]	Buffer writes [Blocks]	Rows processed	Elapsed Time Load [%]	Cpu Time Load [%]
msdb	0.03	0.03	2	0	1 294	0	1	0	0
master	26.30	9.34	1 066	50	91 156	453	19 372	1	1

Instance Load - details of the SQL instance

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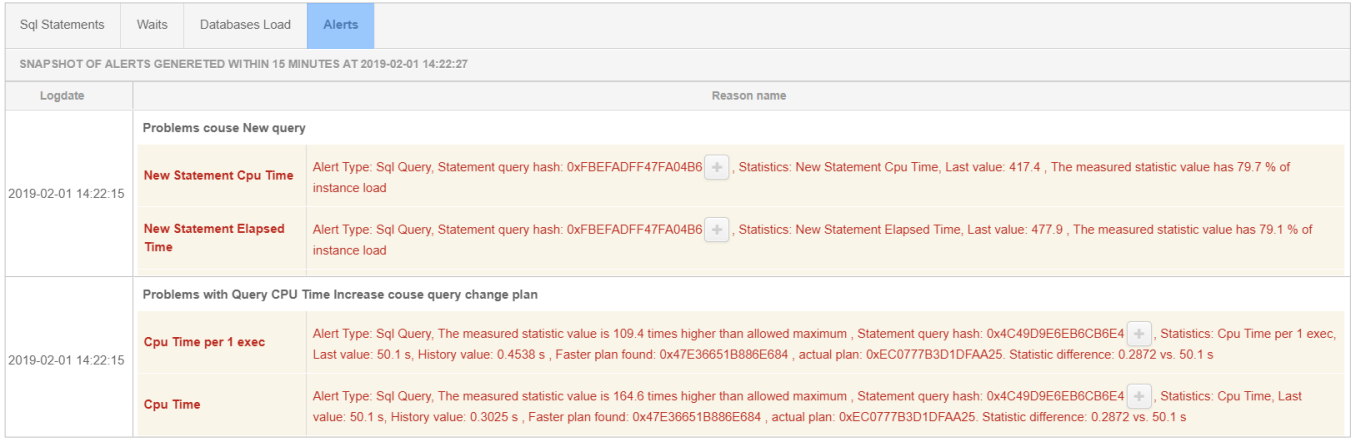
After clicking on a point on the chart, you can find information about:

- Alerts (if any)



Waits Overview

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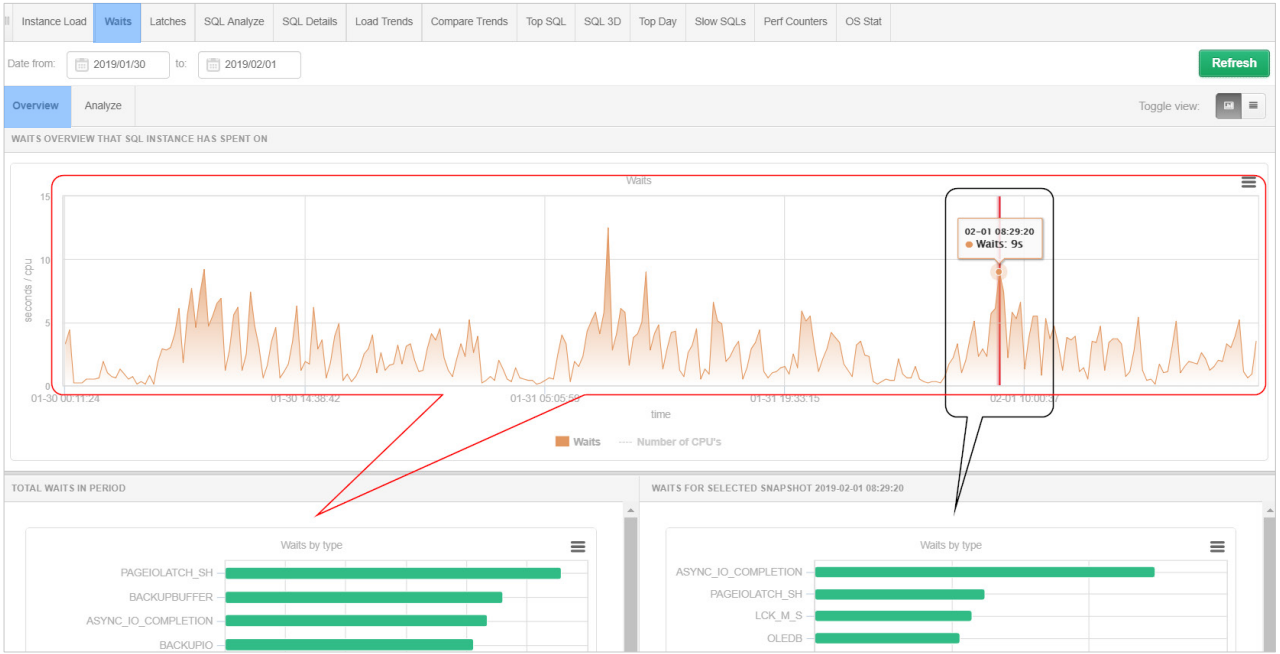
The graph shows the total wait time for all sessions in the SQL instance in a given time period.

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

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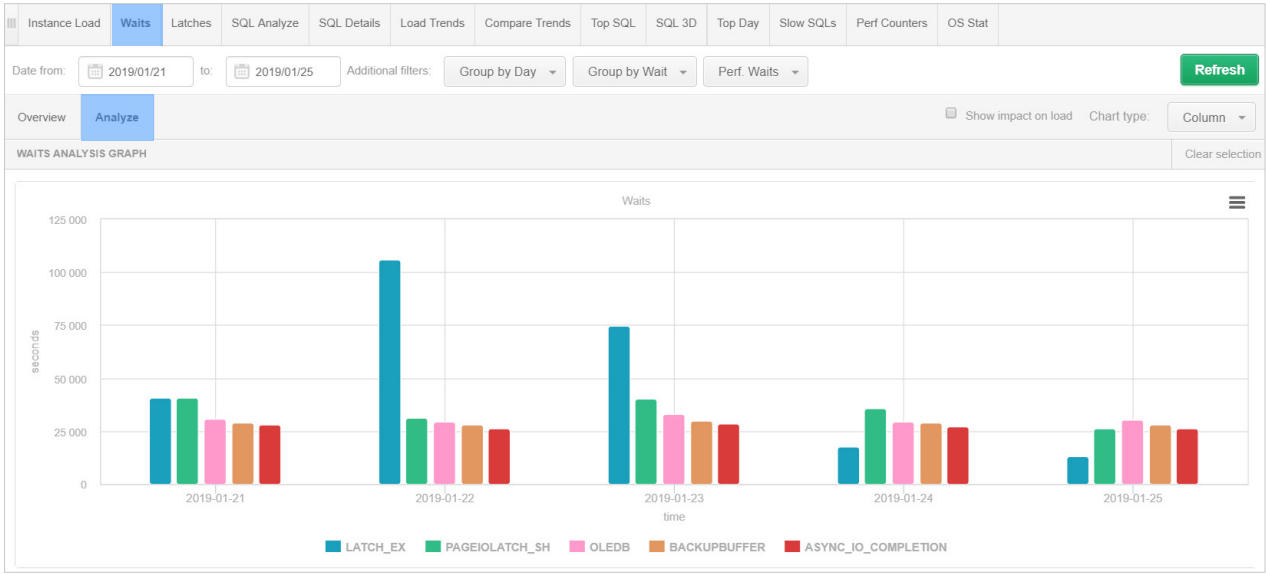
As part of a detailed analysis, you can sort waits by:

- Wait type
- Wait class
- Affecting performance



Waits Analyze

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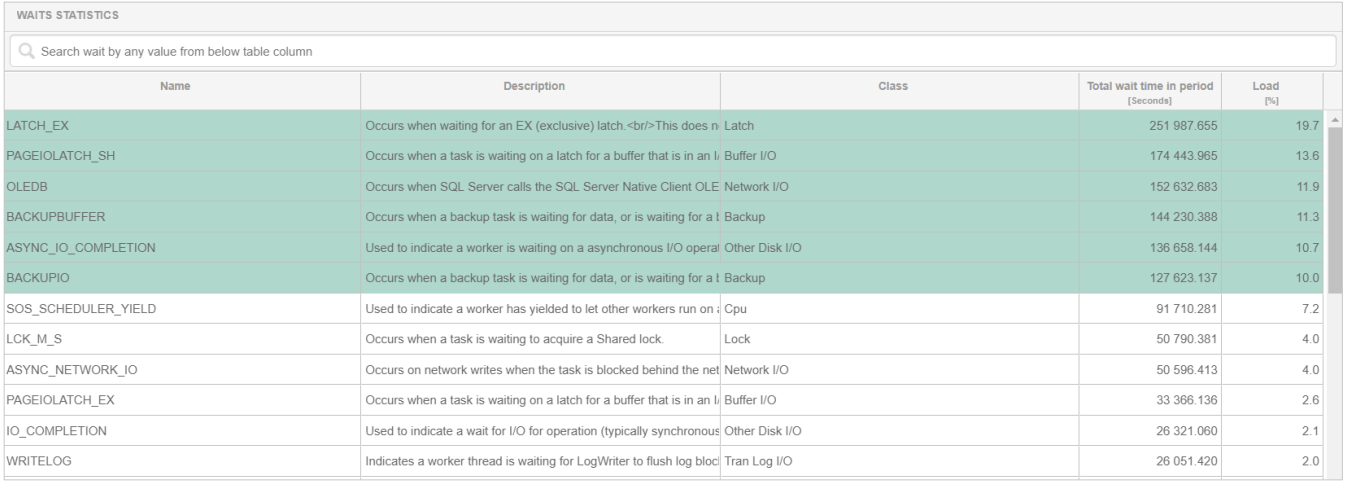
The data presented in the chart are visible in the form of the table to the right.



WAITS STATISTICS

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 b	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 b	Backup	127 623.137	10.0
SOS_SCHEDULER_YIELD	Used to indicate a worker has yielded to let other workers run on s	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

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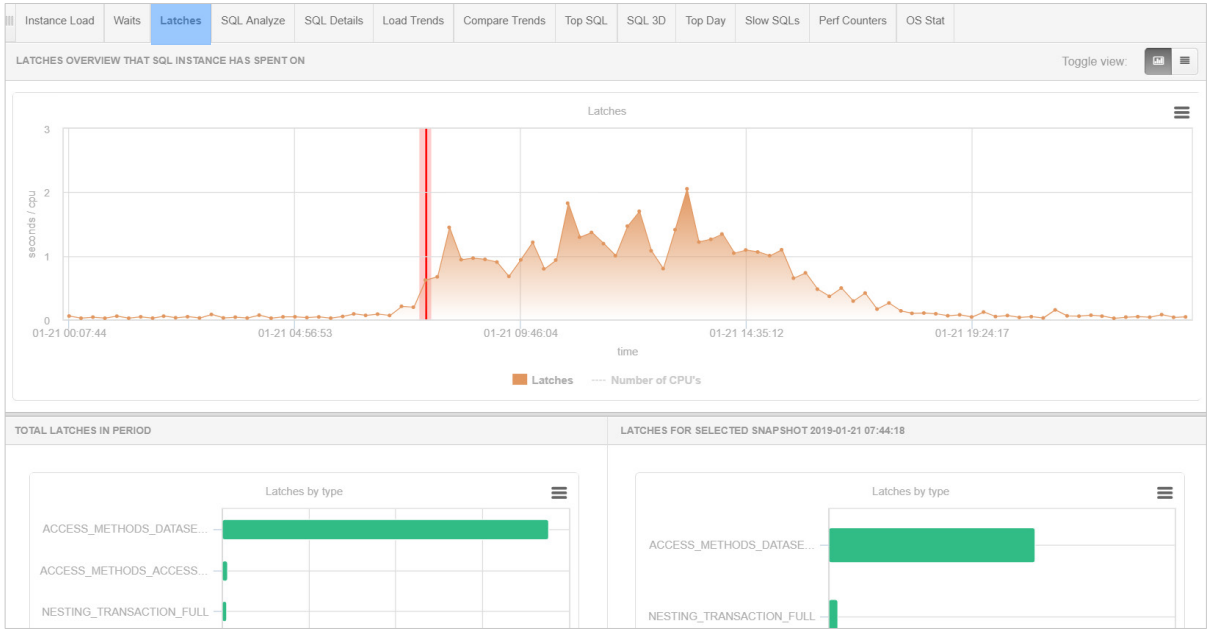
It is possible to present information about the latches occurring in an SQL instance in a given period of time.

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).*



SQL Analyze

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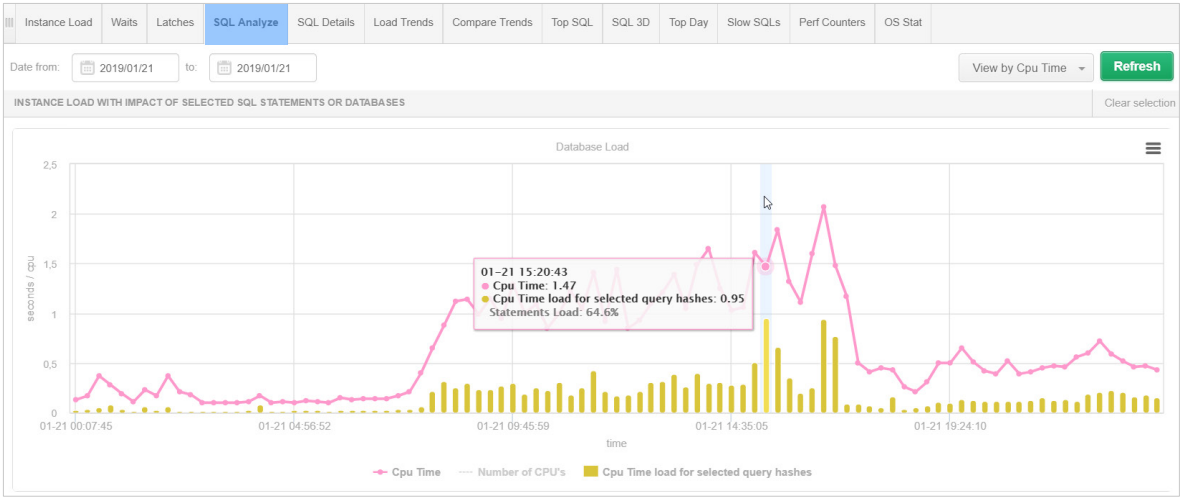
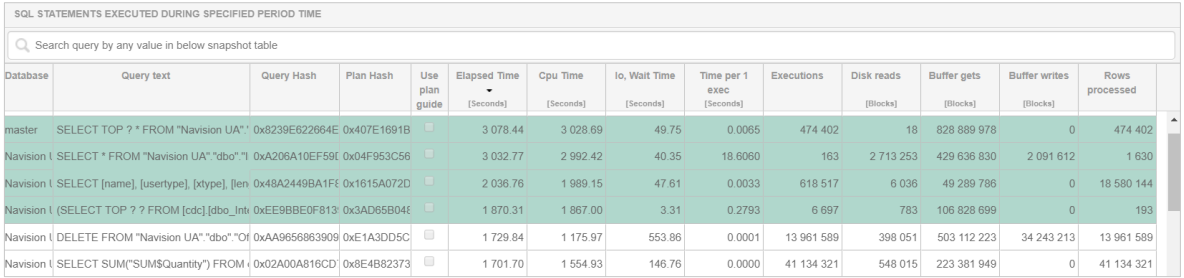
The graph shows the Elapsed Time or CPU utilisation for a given period of time.



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



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 [	SELECT * FROM "Navision UA"."dbo"."I	0xA206A10EF59[	0x04F953C56		3 032.77	2 992.42	40.35	18.6060	163	2 713 253	429 636 830	2 091 612	1 630
Navision [	SELECT [name], [usertype], [xtype], [len	0x48A2449BA1F8	0x1615A072D		2 036.76	1 989.15	47.61	0.0033	618 517	6 036	49 289 786	0	18 580 144
Navision [	(SELECT TOP ? ? FROM [cdc].[dbo_Int	0xEE9BBE0F813	0x3AD65B048		1 870.31	1 867.00	3.31	0.2793	6 697	783	106 828 699	0	193
Navision [	DELETE FROM "Navision UA"."dbo"."Of	0xAA9656863909	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 [	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

SQL Details

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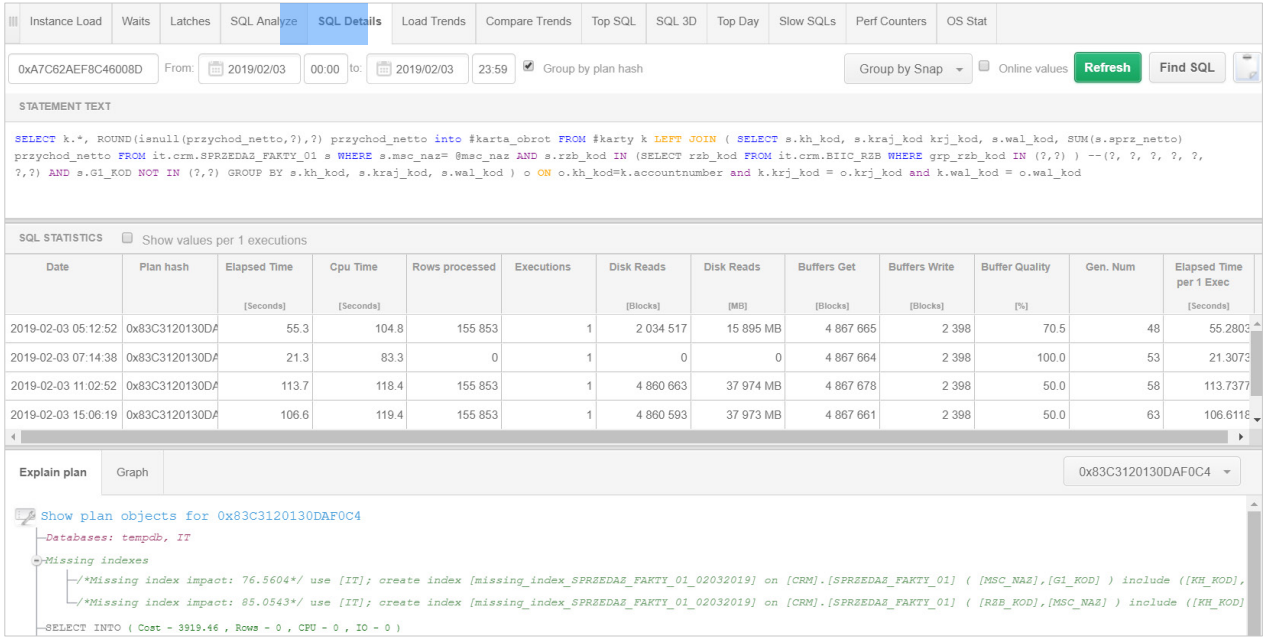
Contains detailed performance statistics for each query.

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



SQL Details

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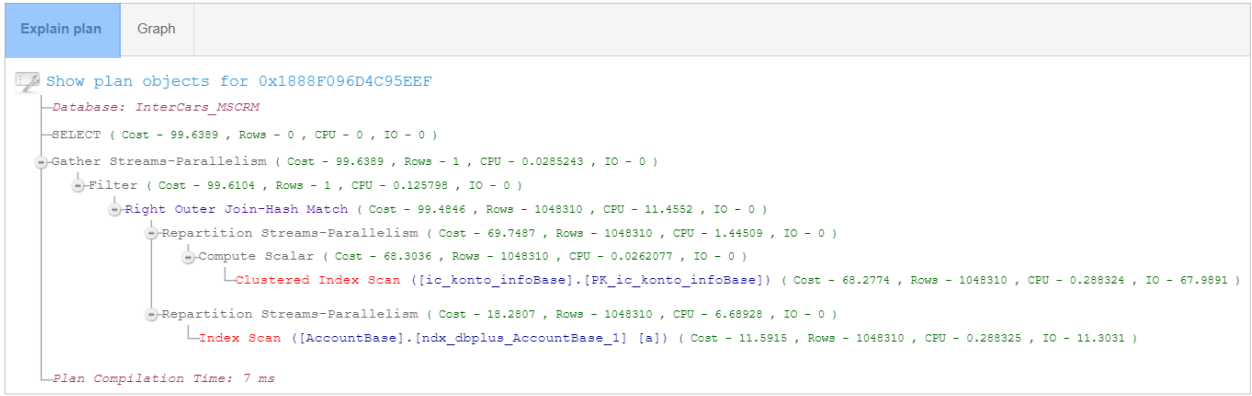
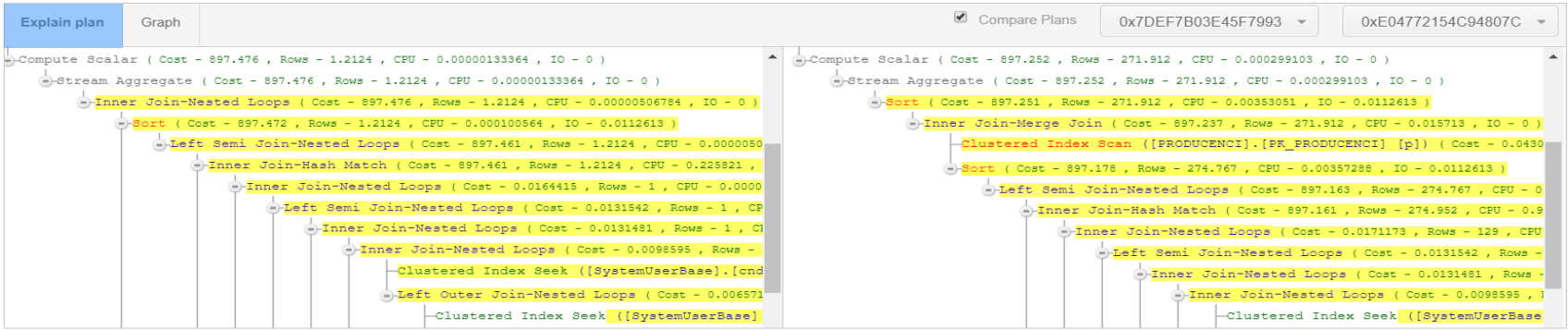
Easy access to the Explain plan.

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

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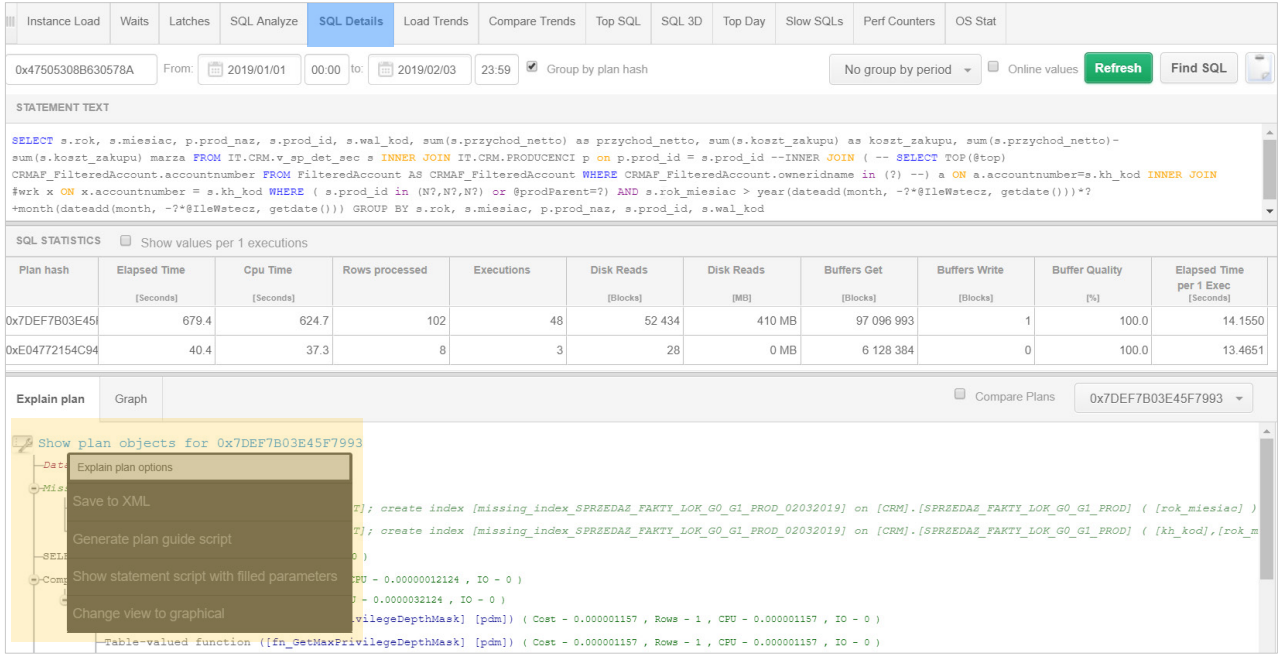
An easy way to generate a ***Plan guide script*** for the selected Explain plan.

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

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



SQL Details

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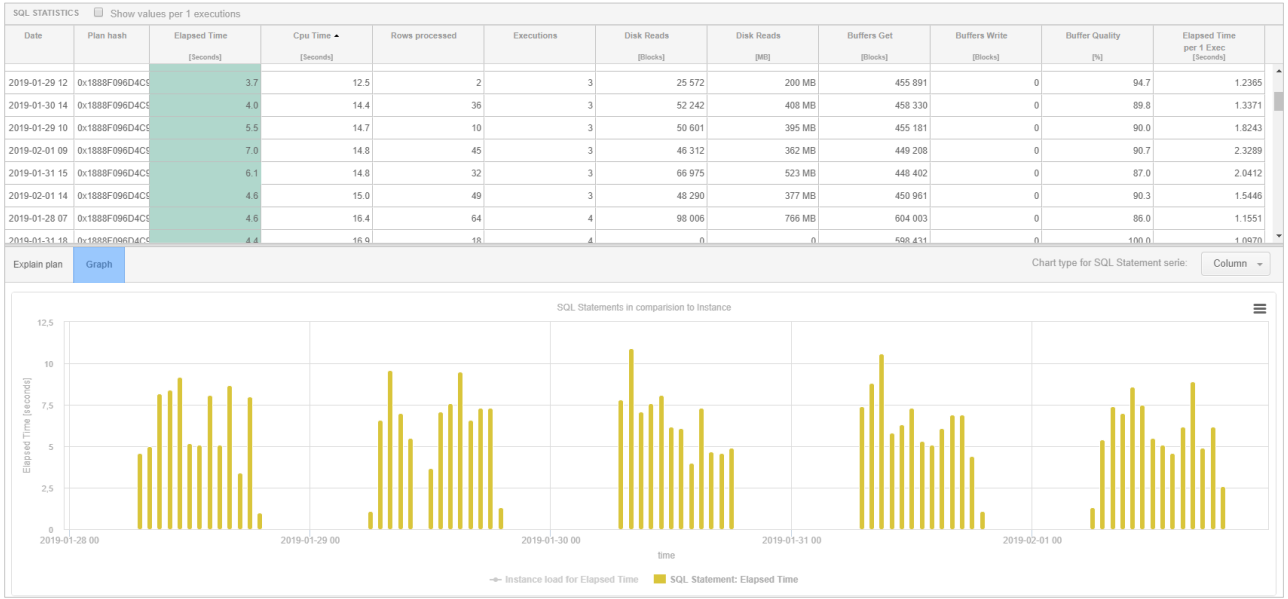
The query statistics can be viewed in a graph by clicking on a given column in the table.

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

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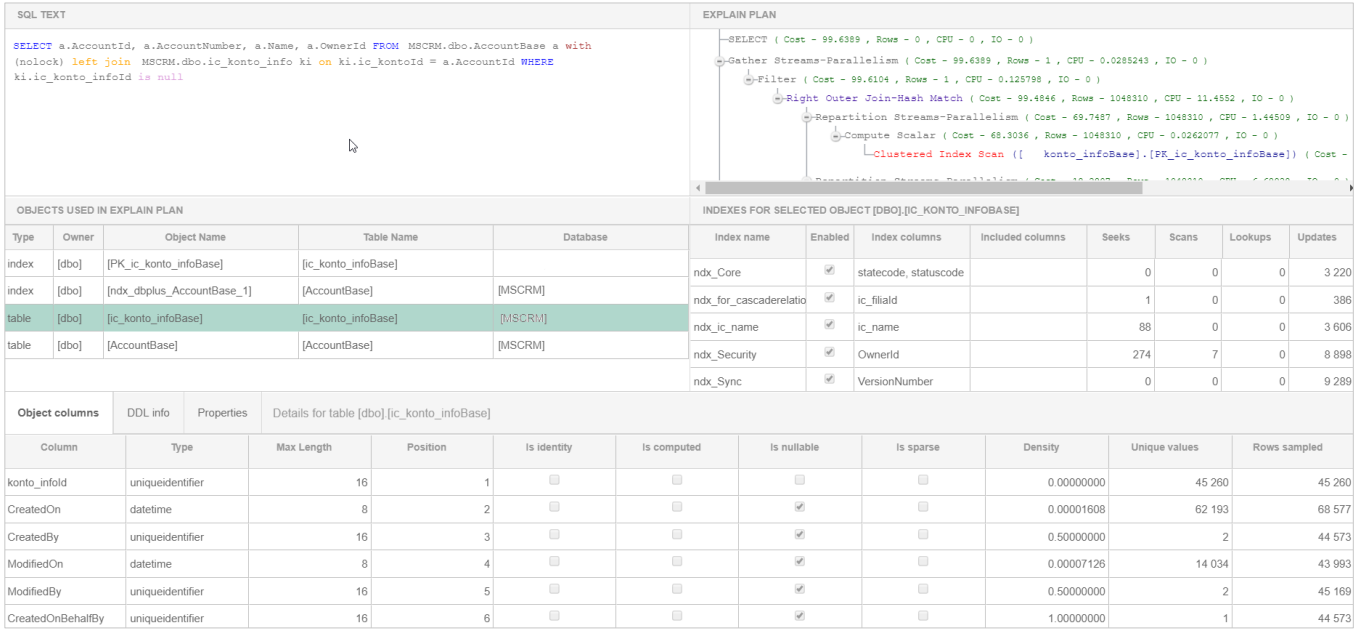
Includes:

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



SQL Details (cont.)

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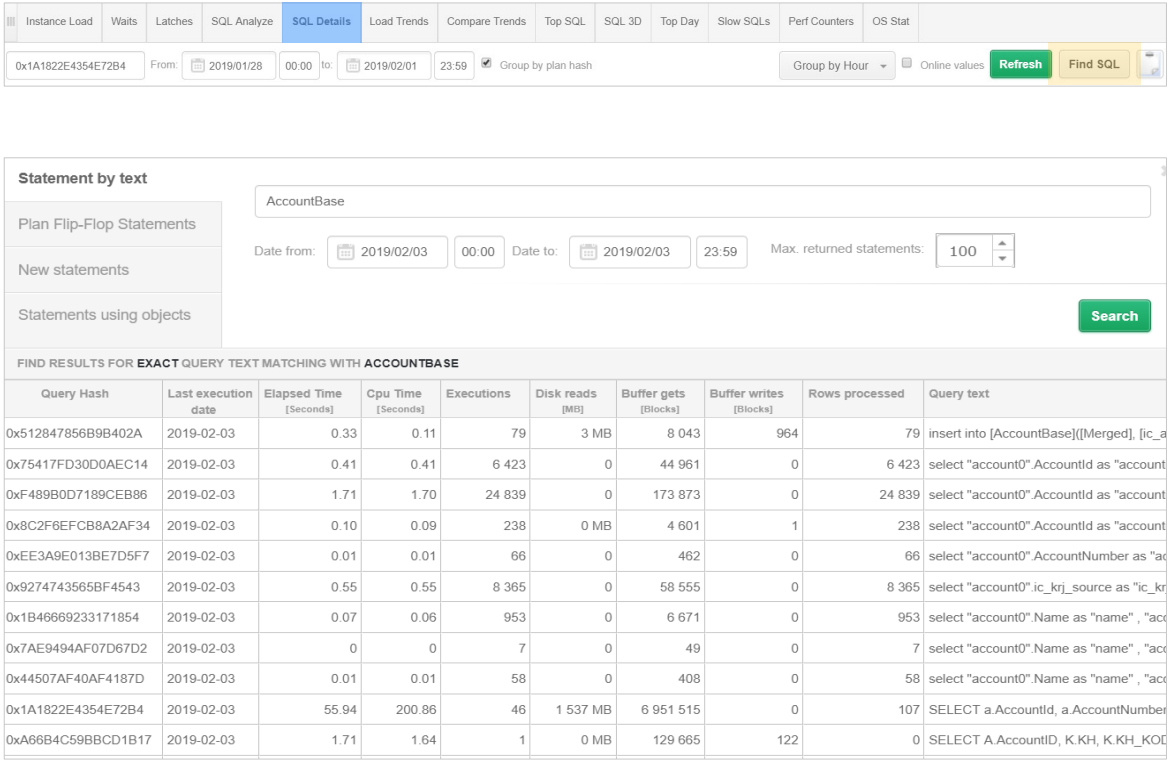
It is also possible to search queries using *Find SQL*

We can search through:

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



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
0x8C2F6EFCB8A2AF34	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

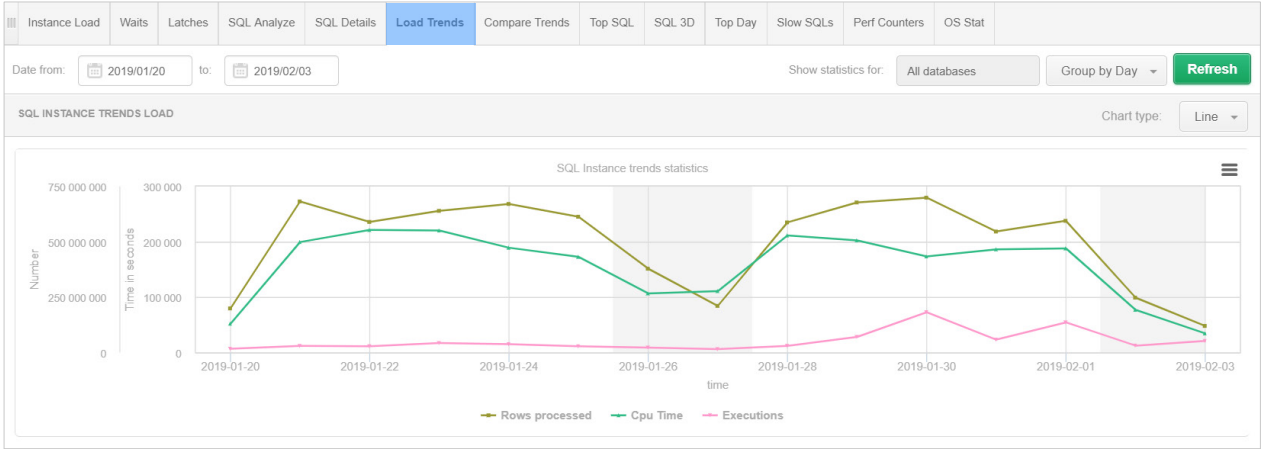
Load trends

DBPLUS
better performance

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*



SQL INSTANCE TRENDS STATISTICS

Clear selection

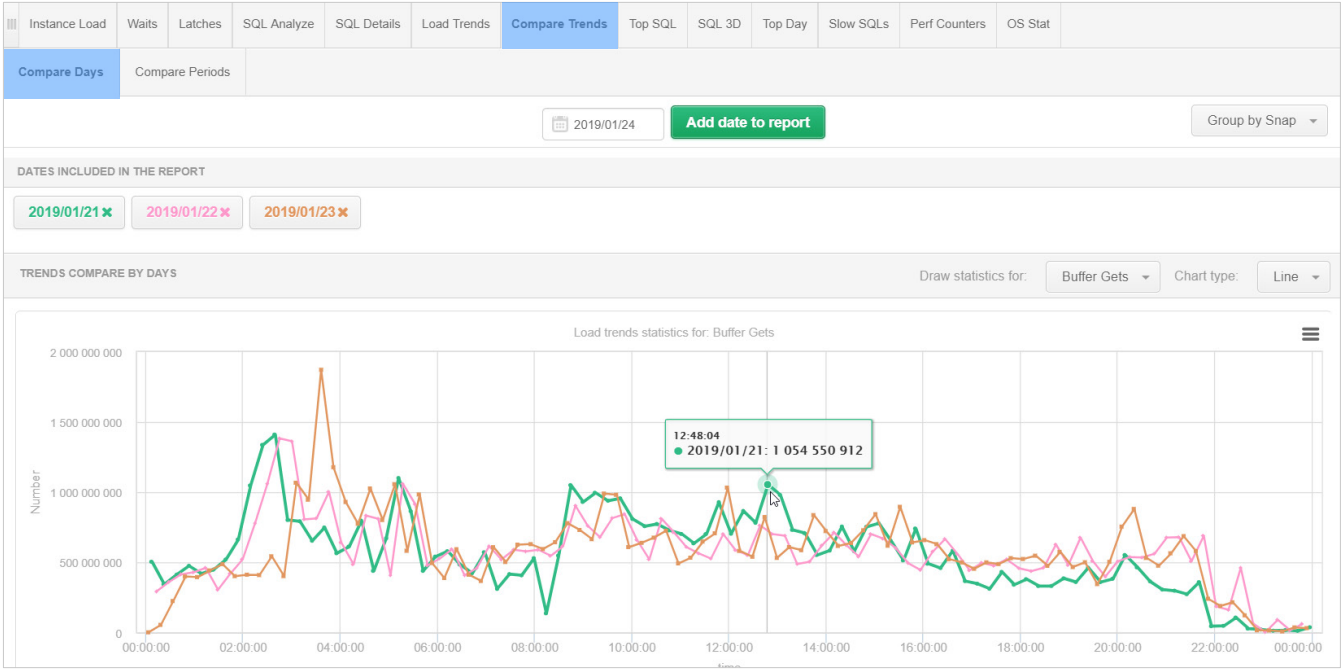
Logdate	Elapsed Time [Seconds]	Cpu Time [Seconds]	Executions	Disk reads [Blocks]	Disk reads [MB]	Buffer gets [Blocks]	Buffer writes [Blocks]	Rows processed	Latches [Seconds]	Waits [Seconds]	Locks [Seconds]	Sessions	Active sessions
2019-01-20	53 417	51 805	16 145 031	115 681 882	903 765 MB	24 262 190 943	5 588 803	198 657 089	3 072	65 494	1 293	610	2
2019-01-21	220 652	199 490	29 104 542	444 231 165	3 470 556 MB	52 912 752 047	42 899 337	682 136 956	40 791	255 186	12 408	648	4
2019-01-22	212 591	221 243	27 708 771	304 523 856	2 379 093 MB	54 397 716 451	44 711 496	589 629 983	106 334	292 711	13 726	646	4
2019-01-23	240 164	220 379	42 056 593	502 913 236	3 929 010 MB	55 224 915 150	46 371 459	639 574 159	75 088	297 146	11 840	644	4

Compare trends

DBPLUS
better performance

Allows you to compare statistics.

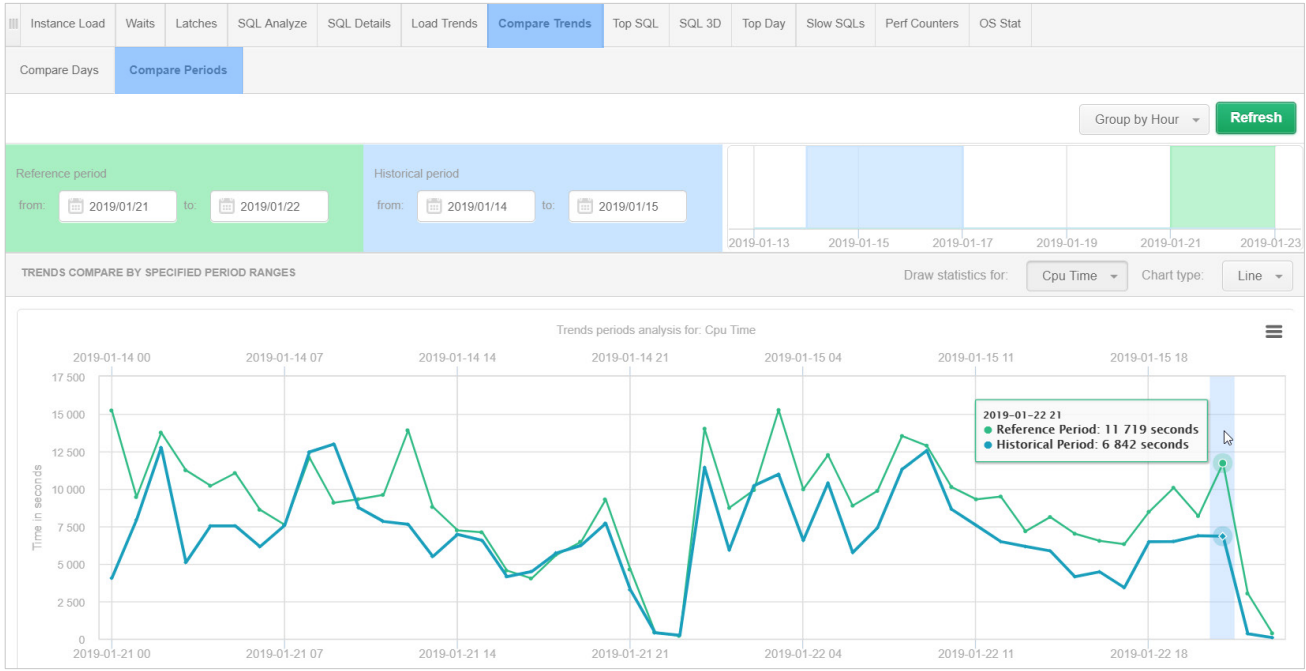
You can compare data collected for a specific **day** (Compare Days tab).



Compare trends

DBPLUS
better performance

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



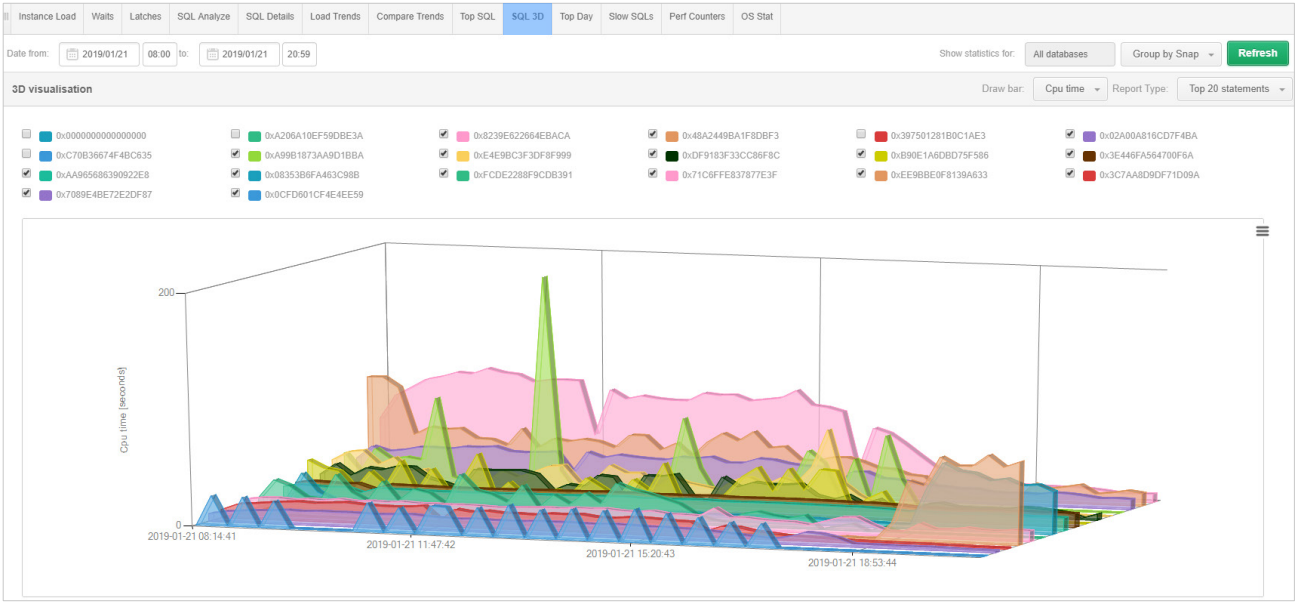
Top SQL/SQL 3D

DBPLUS
better performance

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

We can choose:

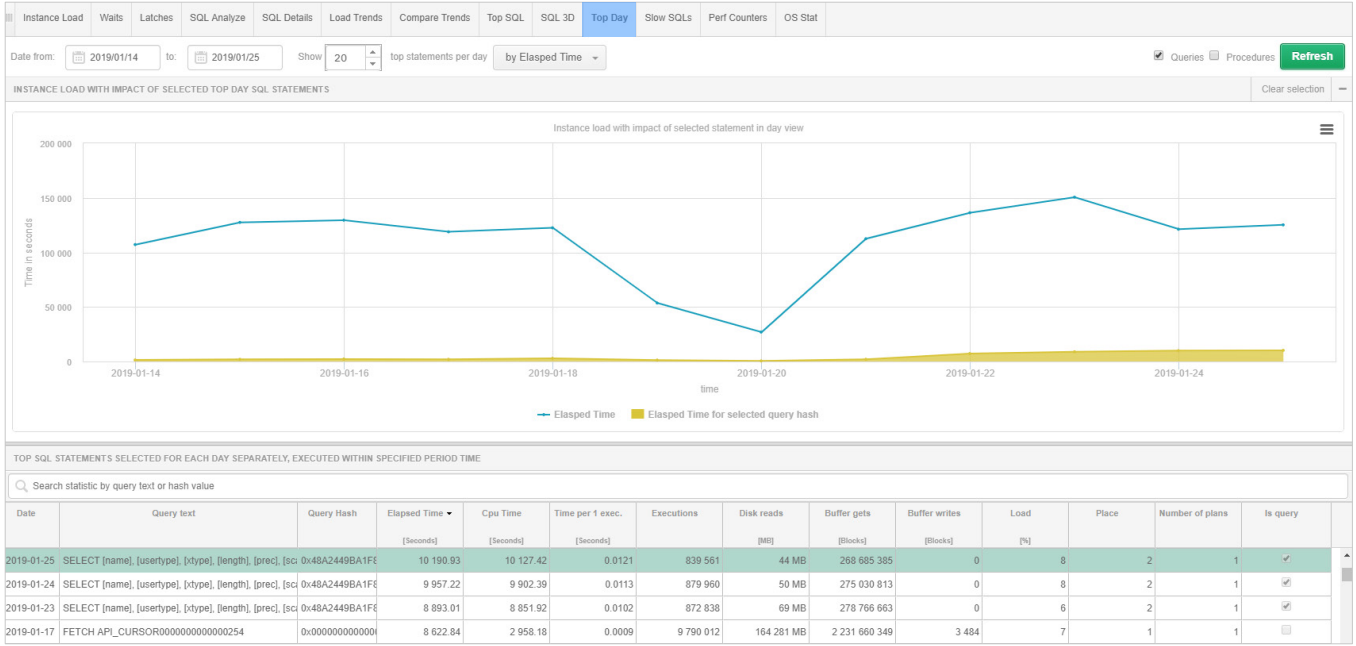
- Elapsed Time
- CPU Time
- Disk reads [block]
- Disk reads [MB]
- Rows processed
- Buffer Gets
- Buffer writes
- Execution



Top Day

DBPLUS
better performance

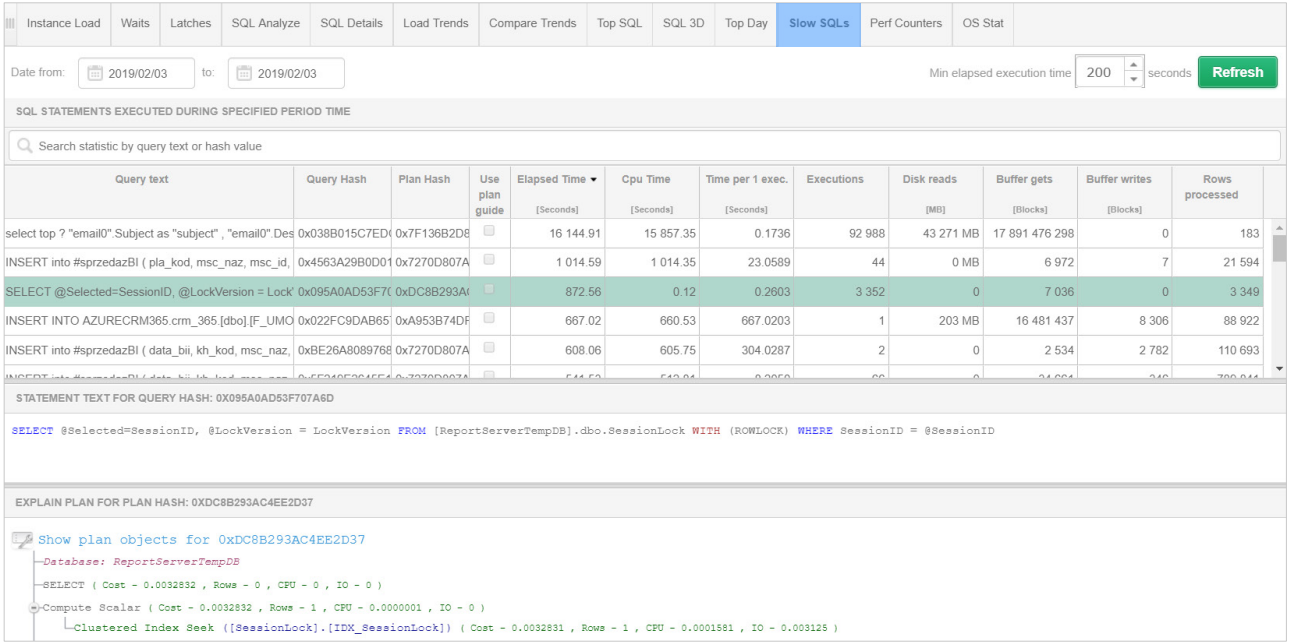
Allows you to display top queries or procedures for CPU Time or Elapsed Time and track changes in their behaviour.



Slow SQLs

DBPLUS
better performance

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



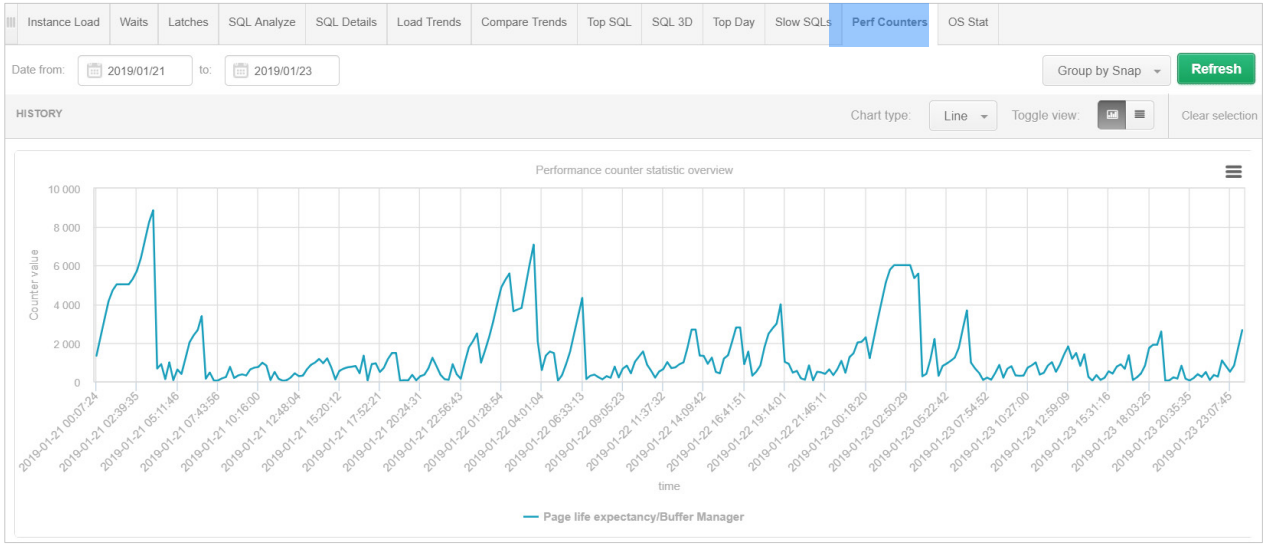
Perf Counters

DBPLUS
better performance

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.

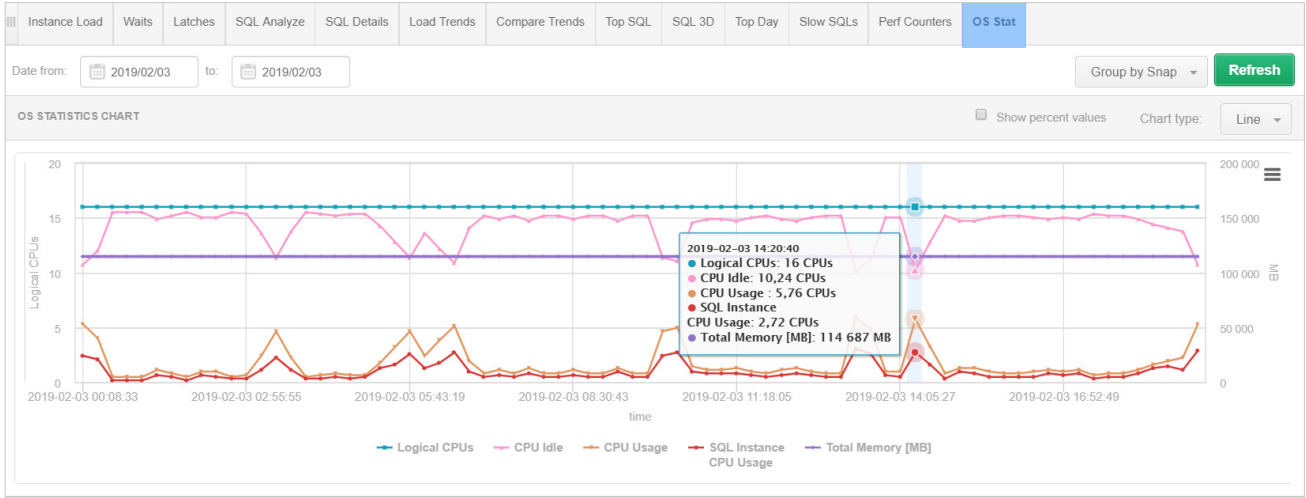
Data is presented for up **to 30 days**.



OS Stat

DBPLUS
better performance

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



OS STAT STATISTICS

Clear selection

Logdate	Logical CPUs	SQL Instance Logical CPUs	CPU Idle	CPU Usage	SQL Instance CPU Usage	Total Memory [MB]	Memory Free [MB]	Memory Used [MB]
2019-02-03 00:08:33	16	16	10.72	5.28	2.40	114 687 MB	6 964 MB	107 723 MB
2019-02-03 00:23:46	16	16	12.00	4.00	2.08	114 687 MB	7 453 MB	107 234 MB
2019-02-03 00:38:59	16	16	15.52	0.48	0.16	114 687 MB	7 463 MB	107 224 MB

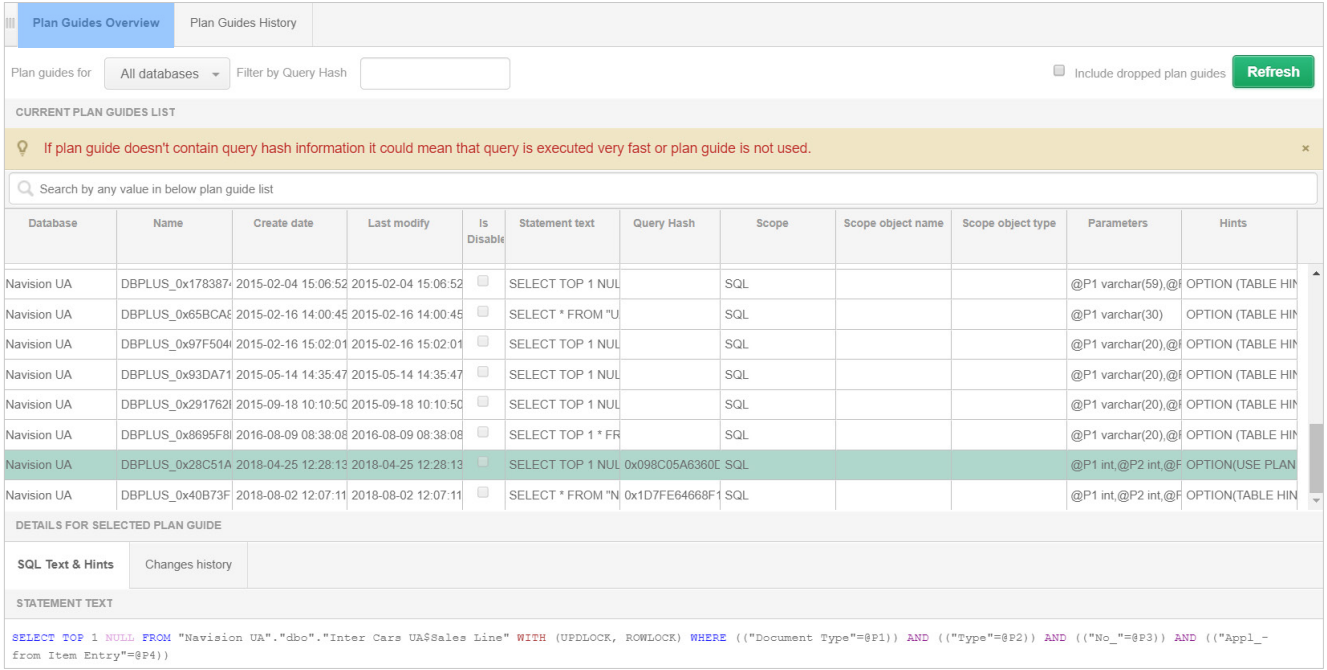
Plan Guides

DBPLUS
better performance

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.



I/O Stats

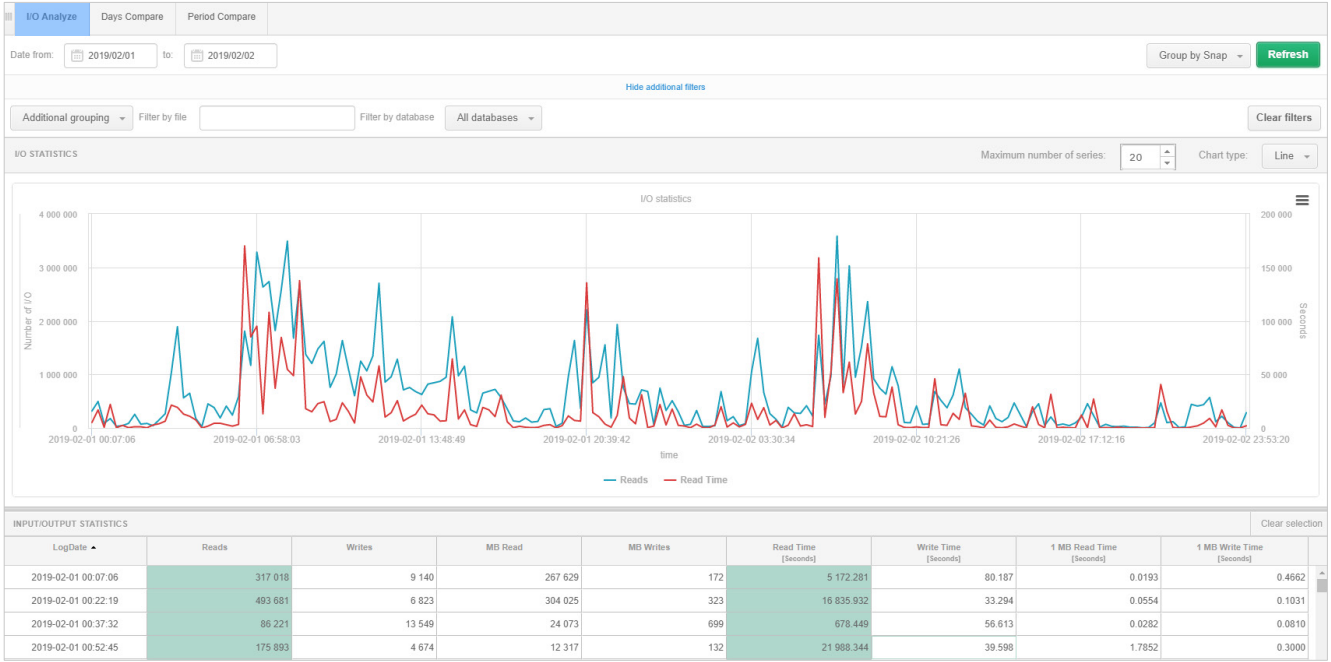
DBPLUS
better performance

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.

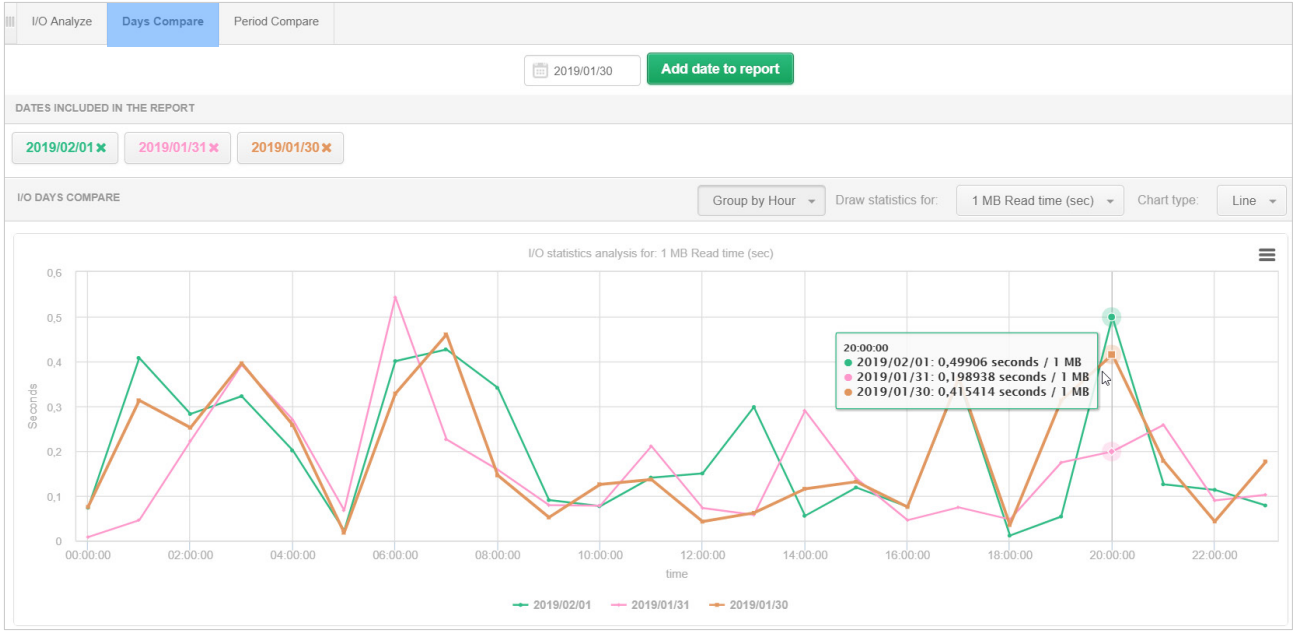


LogDate	Reads	Writes	MB Read	MB Writes	Read Time [Seconds]	Write Time [Seconds]	1 MB Read Time [Seconds]	1 MB Write Time [Seconds]
2019-02-01 00:07:06	317 018	9 140	267 629	172	5 172.281	80.187	0.0193	0.4662
2019-02-01 00:22:19	493 681	6 823	304 025	323	16 835.932	33.294	0.0554	0.1031
2019-02-01 00:37:32	86 221	13 549	24 073	699	678.449	56.613	0.0282	0.0810
2019-02-01 00:52:45	175 893	4 674	12 317	132	21 988.344	39.598	1.7852	0.3000

I/O Stats

DBPLUS
better performance

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



Space Monitor

DBPLUS
better performance

Allows you to analyse the current disk space occupancy by:

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

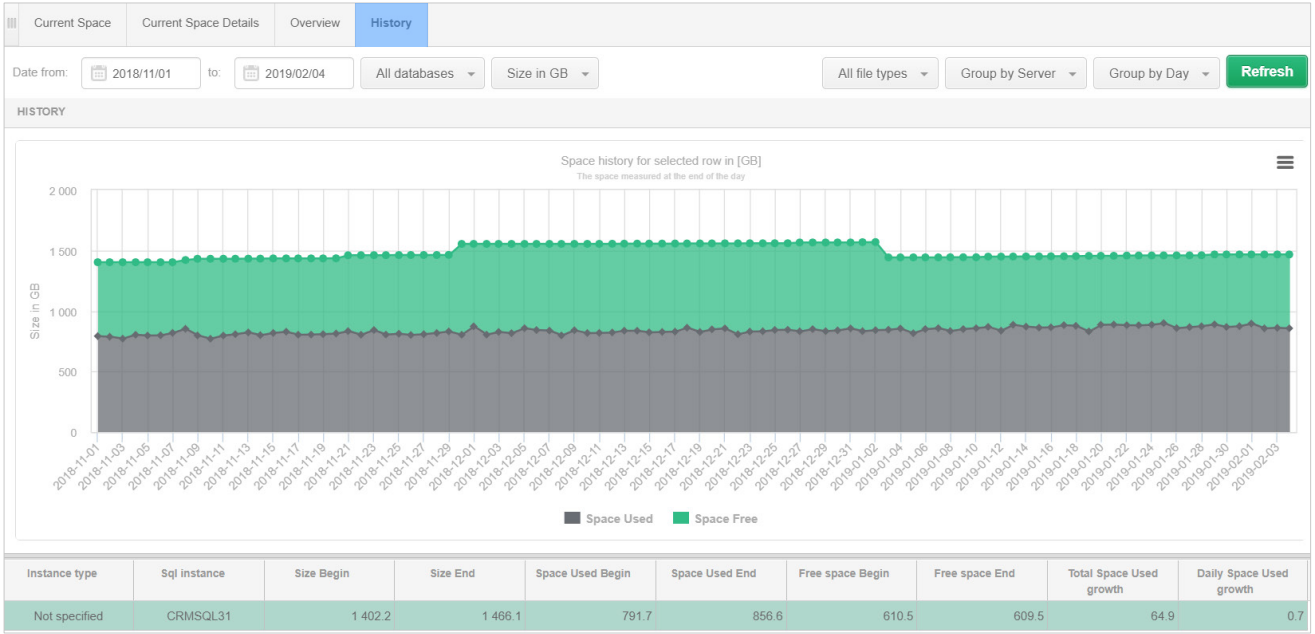
Instance type	Sql instance	Total space	Space used	Free	Free [%]	Daily growth	Week growth	Month growth
Not specified	CRMSQL31	1 466.1	857.6	608.5	41.5	-2.6	-15.7	3.1

Space Monitor

DBPLUS
better performance

Presents historical data for verification.

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



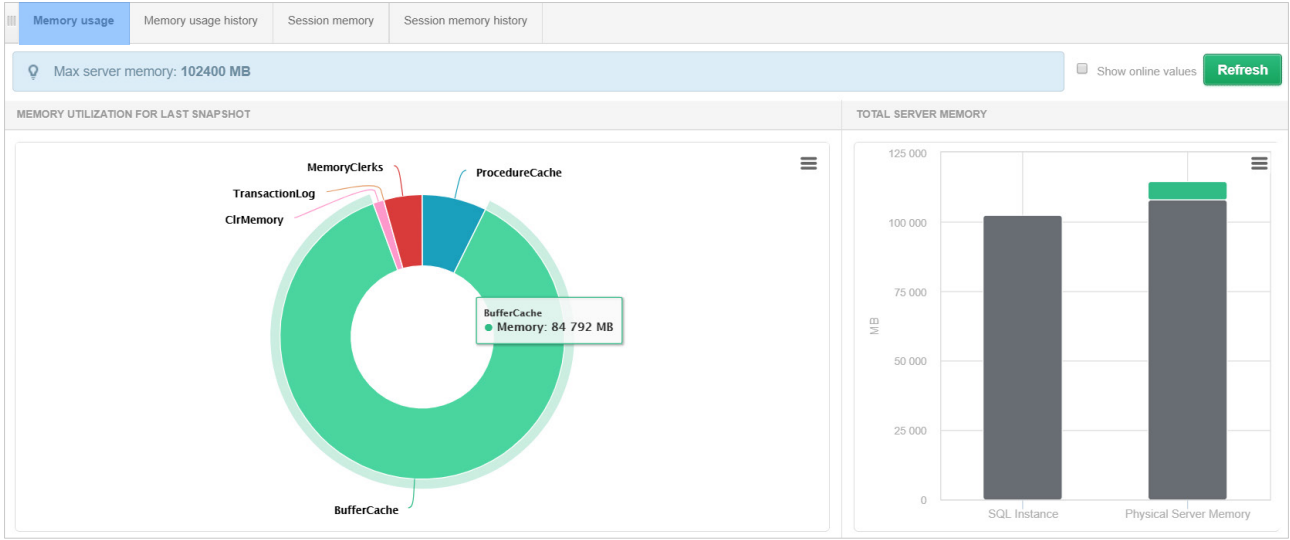
Instance type	Sql instance	Size Begin	Size End	Space Used Begin	Space Used End	Free space Begin	Free space End	Total Space Used growth	Daily Space Used growth
Not specified	CRMSQL31	1 402.2	1 466.1	791.7	856.6	610.5	609.5	64.9	0.7

Memory

DBPLUS
better performance

Presents information on memory utilisation in a given SQL instance.

Displays the current memory usage.

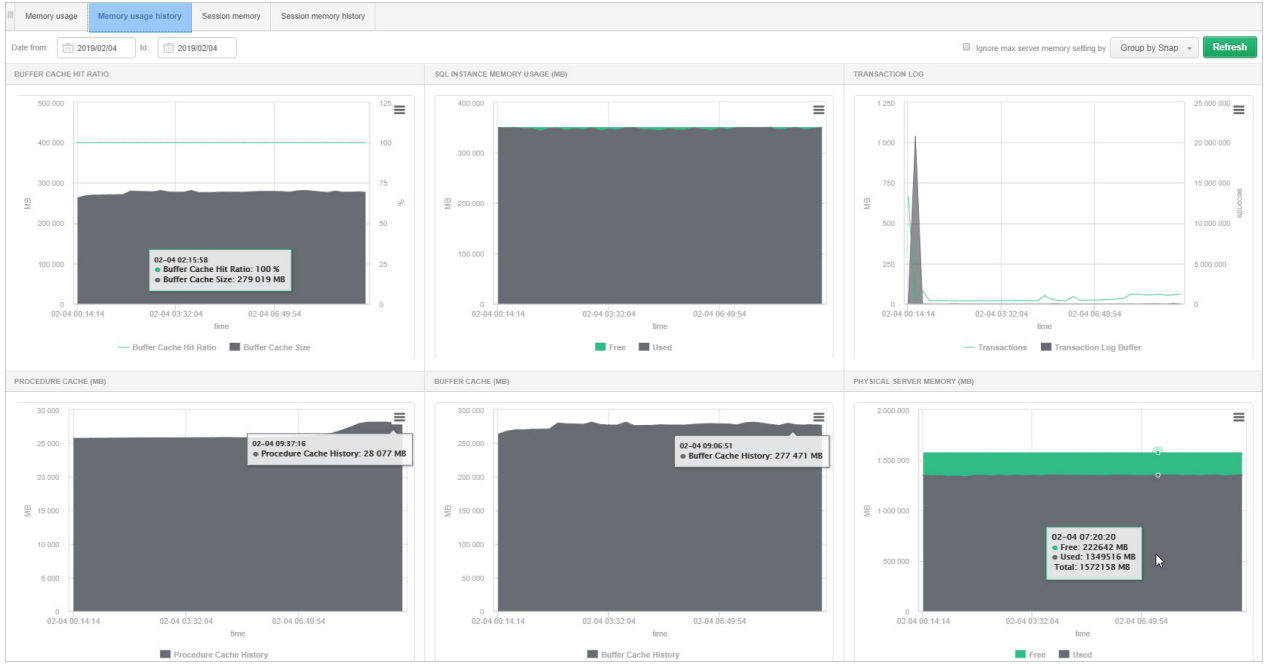


Memory

DBPLUS
better performance

The history of memory usage contains information on:

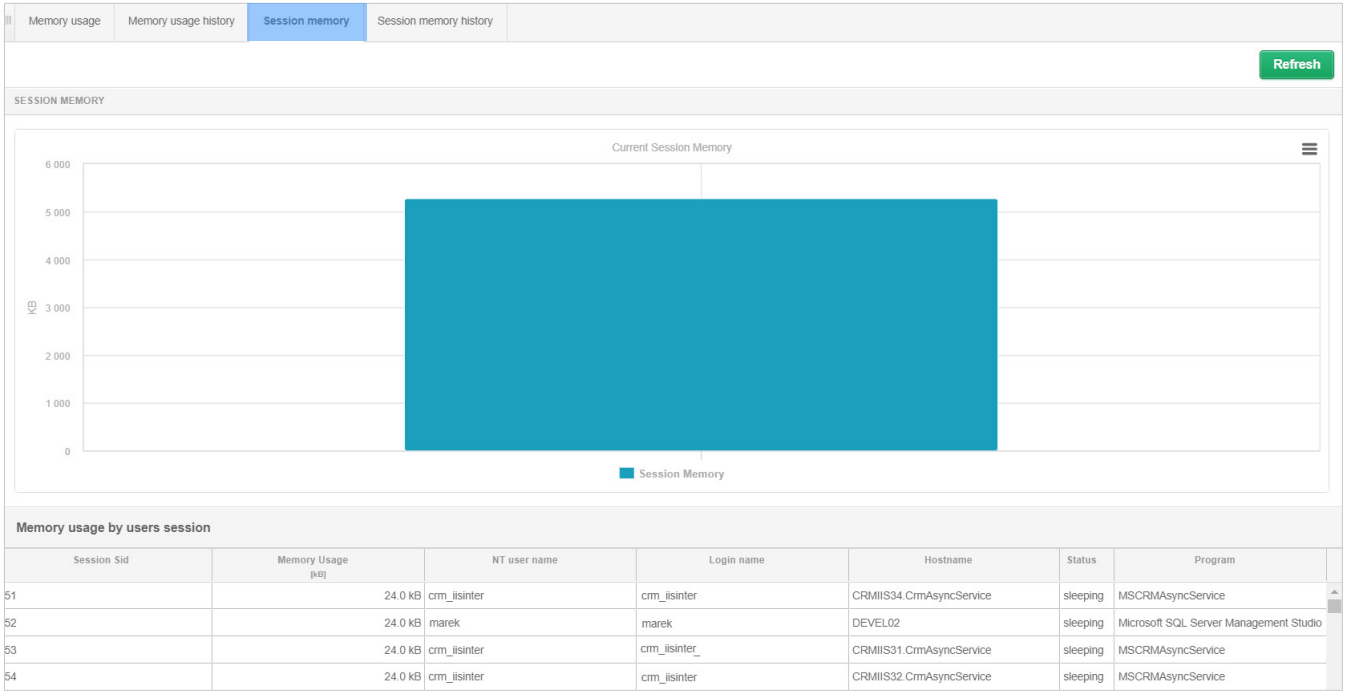
- Buffer Cache Hit Ratio
- Memory utilization by SQL instances
- Transaction Log
- Procedure Cache Size
- Buffer Cache
- The physical server memory



Memory

DBPLUS
better performance

Contains information on the memory usage by user sessions.



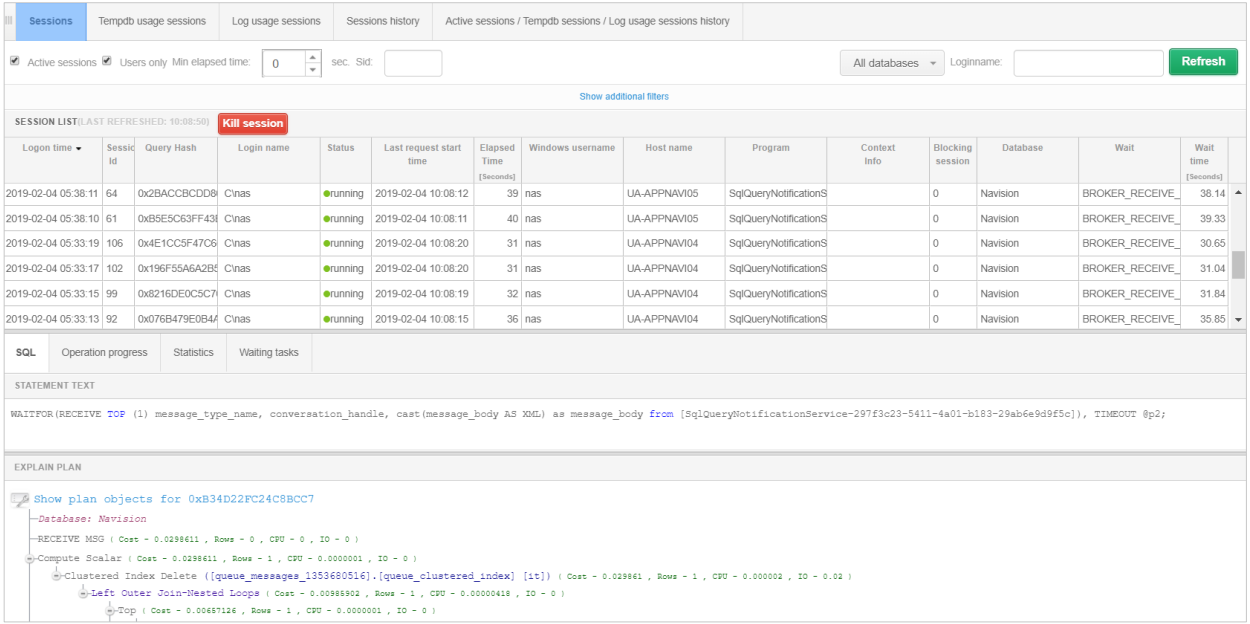
Sessions

DBPLUS
better performance

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 history

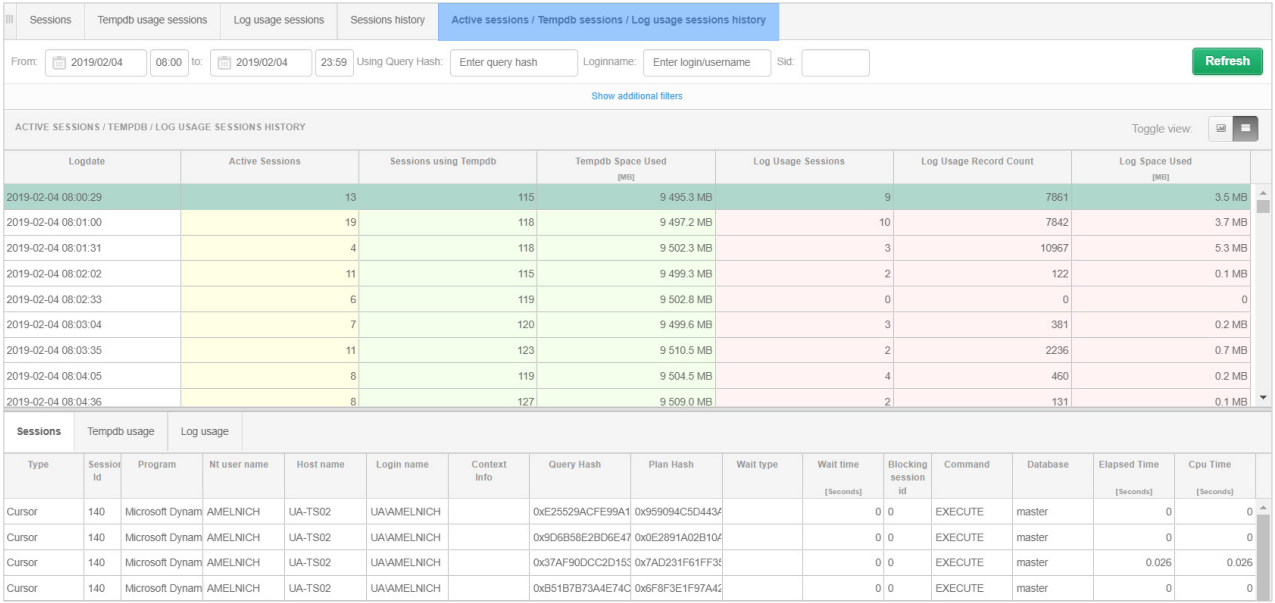
DBPLUS
better performance

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.

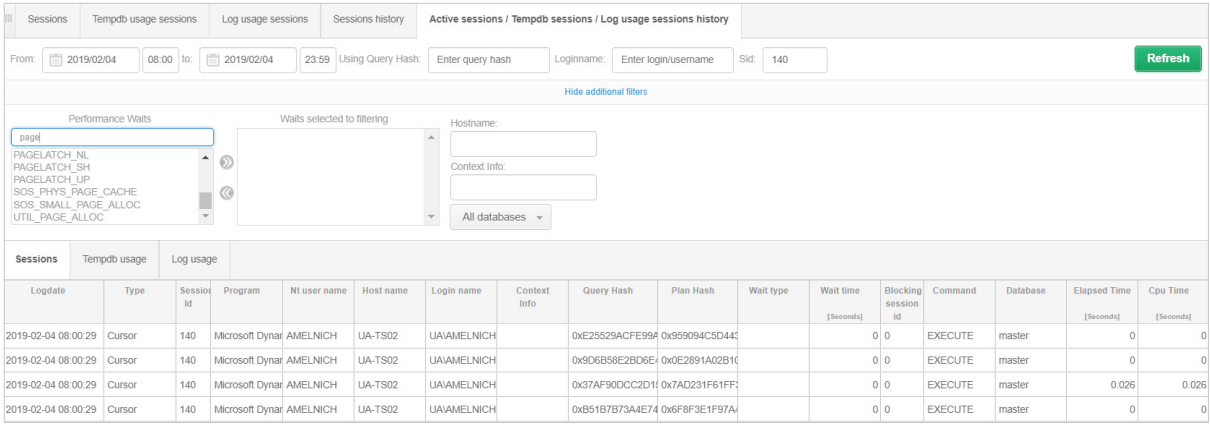


Sessions history

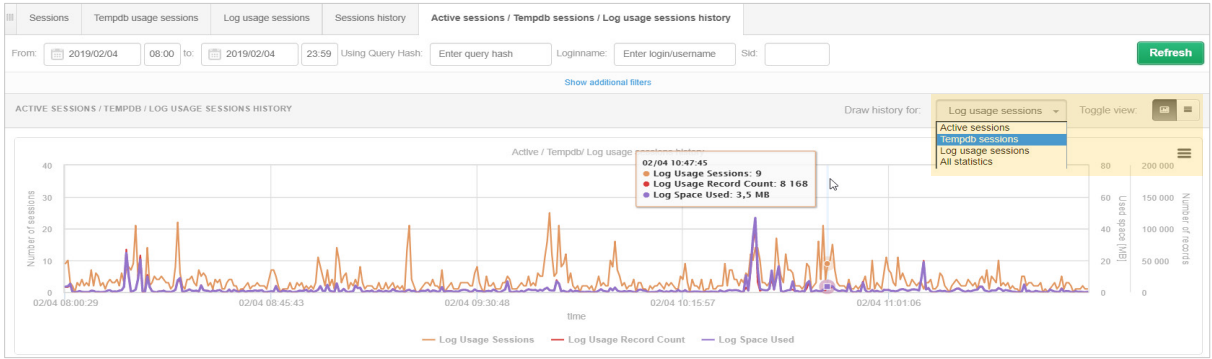
DBPLUS
better performance

Sessions can be sorted using:

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



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



Locks

DBPLUS
better performance

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.

Locks

DBPLUS
better performance

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	UA\asu
Command	SELECT
Status	running
Last Request Date	2019-02-04 10:48:16
Last Request Runtime	0
Nt 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

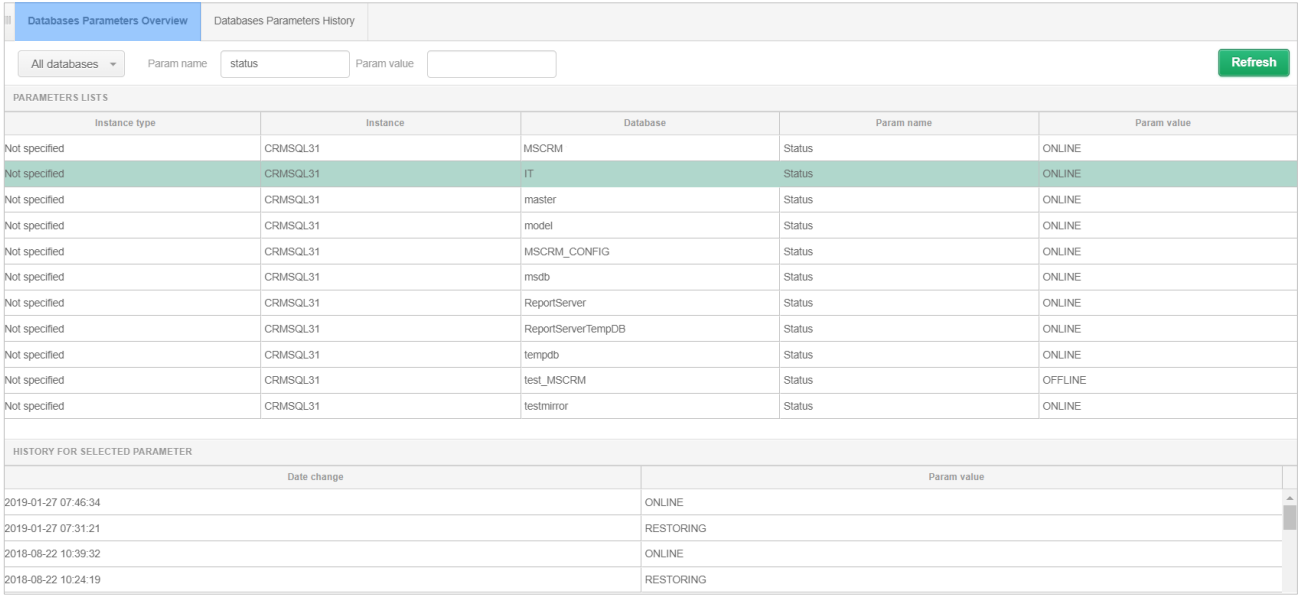
Parameters

DBPLUS
better performance

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.



Anomaly Monitor

DBPLUS
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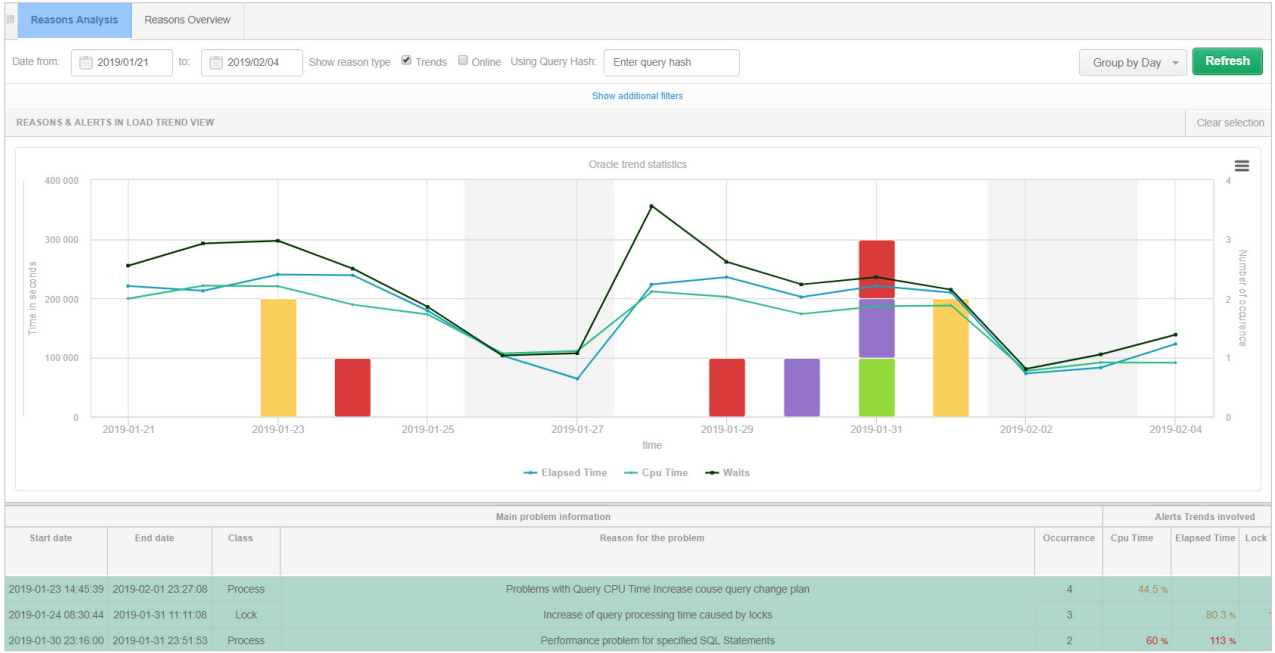
This module contains information about problems affecting database performance.

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

Two types of Alerting:

- Online
- Trends

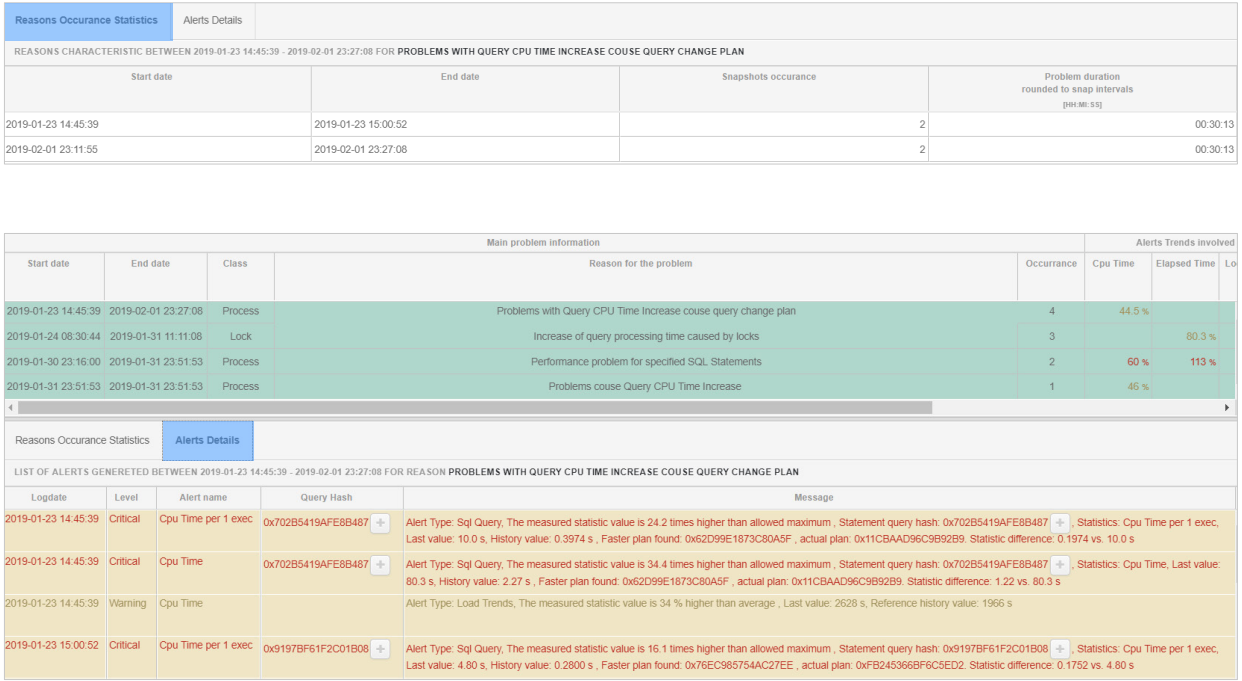


Anomaly Monitor

DBPLUS
better performance

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 occurance	Problem duration rounded to snap intervals [HH:MI:SS]
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	Occurance	Cpu Time	Elapsed Time	Lo
2019-01-23 14:45:39	2019-02-01 23:27:08	Process	Problems with Query CPU Time Increase couse 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 couse Query CPU Time Increase	1	46 %		

Reasons Occurance Statistics | Alerts Details

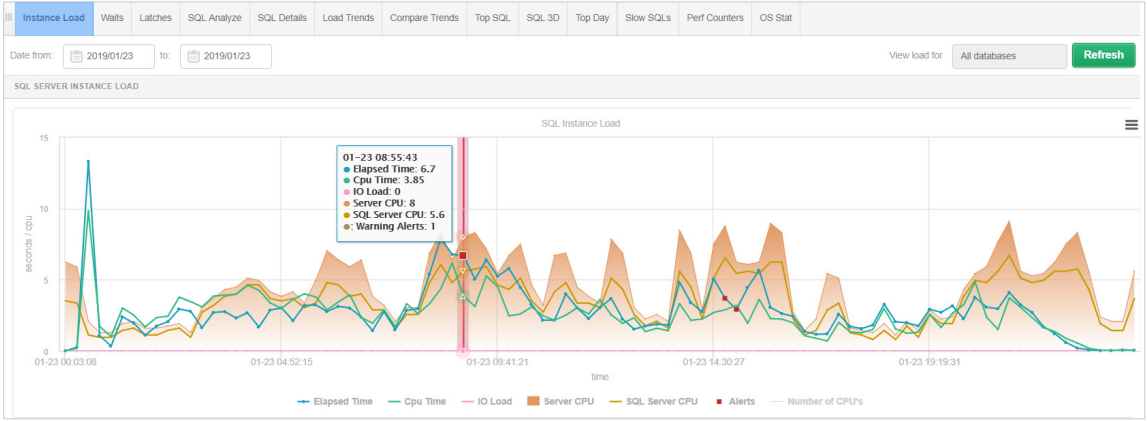
LIST OF ALERTS GENERETED BETWEEN 2019-01-23 14:45:39 - 2019-02-01 23:27:08 FOR REASON PROBLEMS WITH QUERY CPU TIME INCREASE COUSE QUERY CHANGE PLAN

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: 0xFB245366BF6C5ED2. Statistic difference: 0.1752 vs. 4.80 s

Anomaly Monitor - Instance Load

DBPLUS
better performance

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 GENERETED 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 couse 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: 0x11CBAAD96C9B92B9. 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: 0x11CBAAD96C9B92B9. Statistic difference: 1.22 vs. 80.3 s

Anomaly Monitor - Configuration

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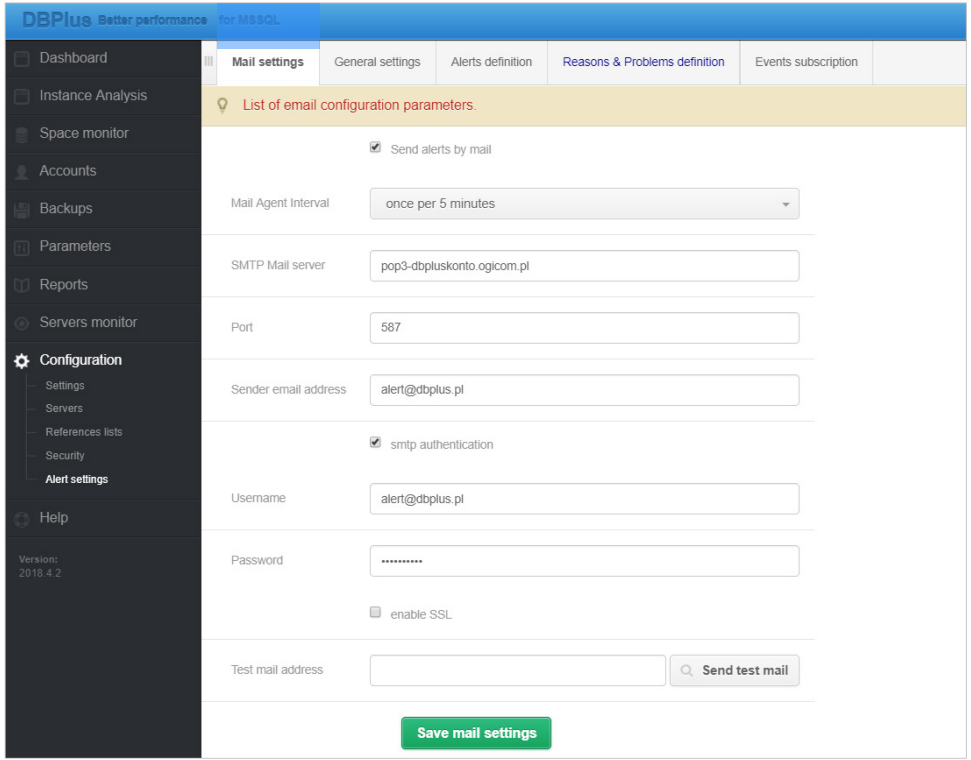
Configuration and alert definitions are available in the menu:

Configuration > Alert settings

- Setting the mailbox



Anomaly Monitor - Configuration

DBPLUS
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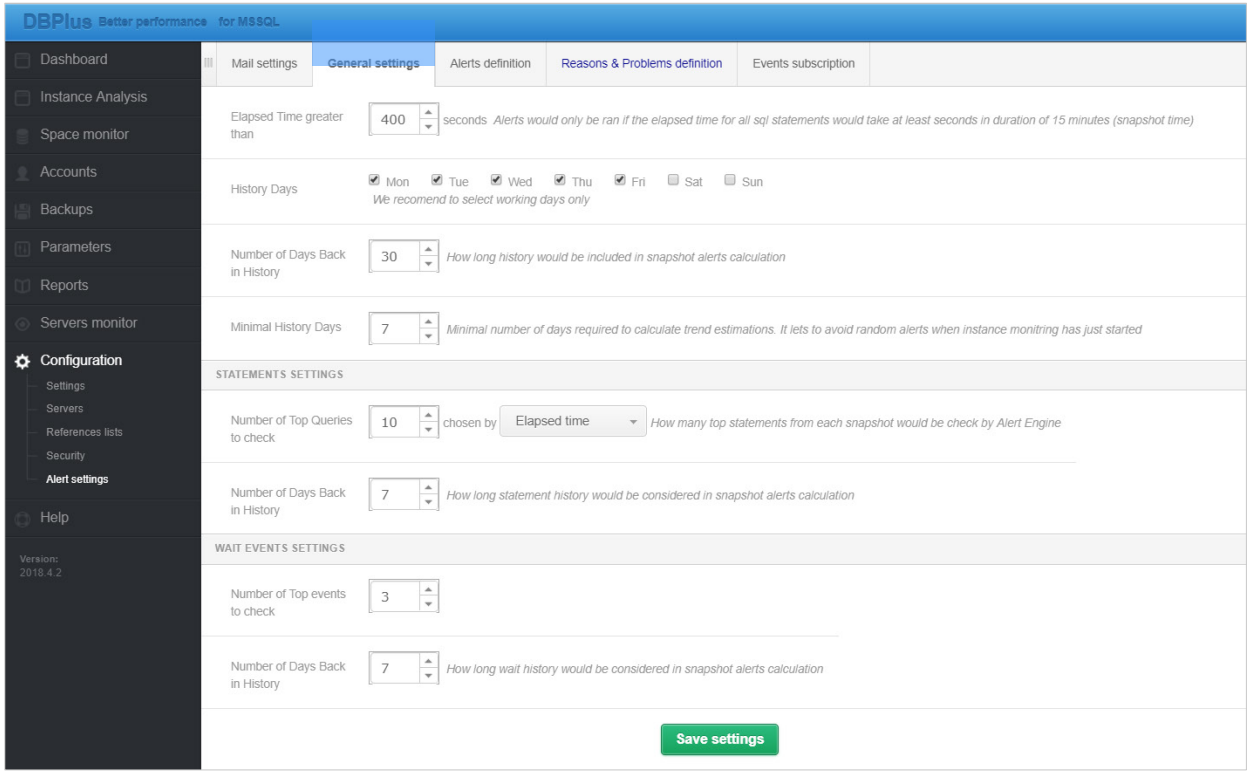
Configuration and alert definitions are available in the menu:

Configuration > Alert settings

- General settings

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



Anomaly Monitor - How does it work?

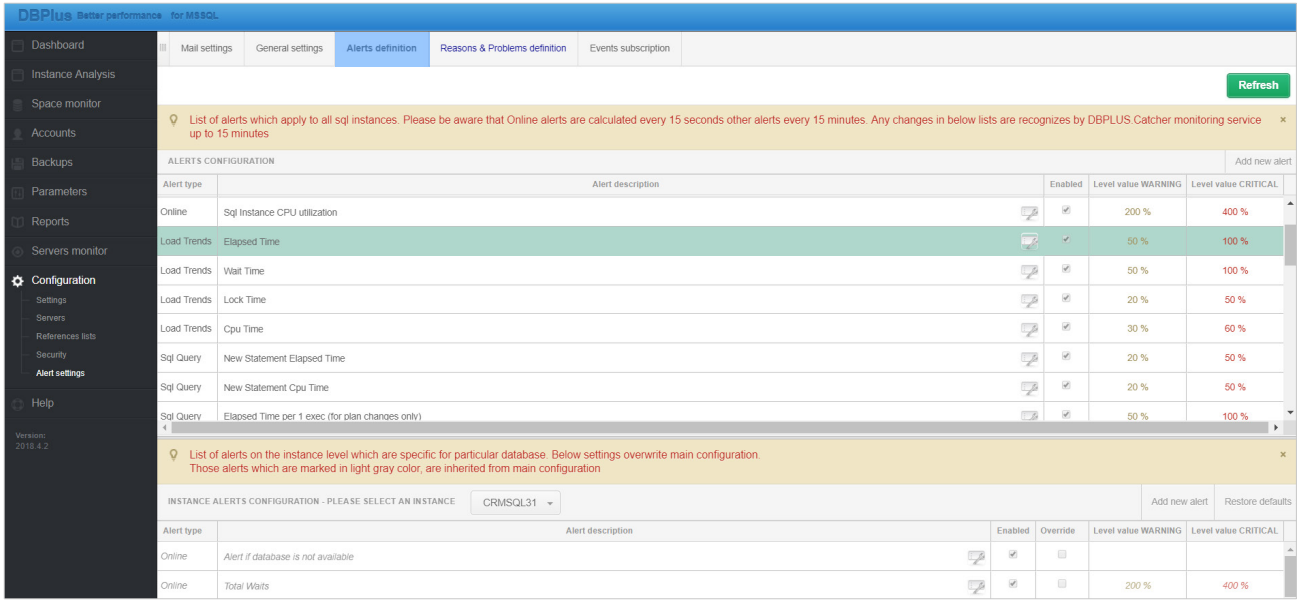
DBPLUS
better performance

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.



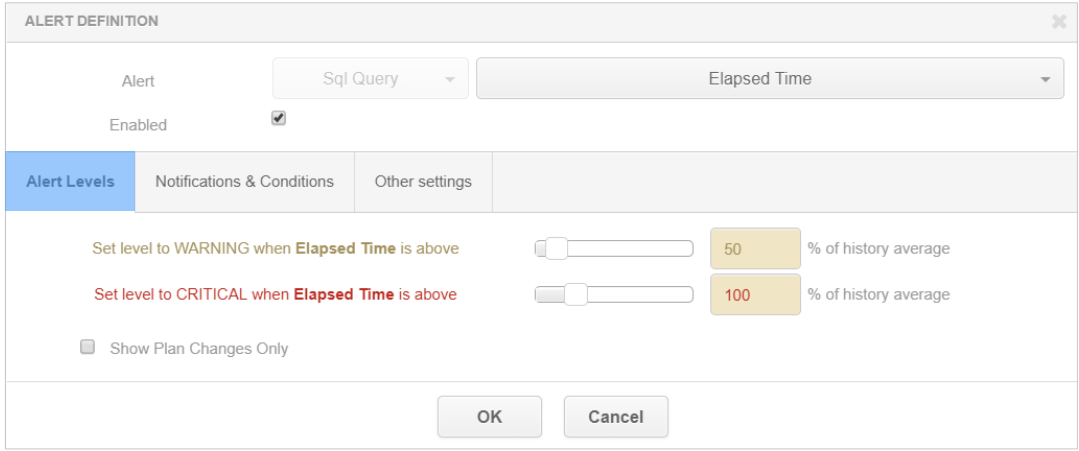
Anomaly Monitor - How does it work?

DBPLUS
better performance

The alert definition consists of:

Selecting the alert type:

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



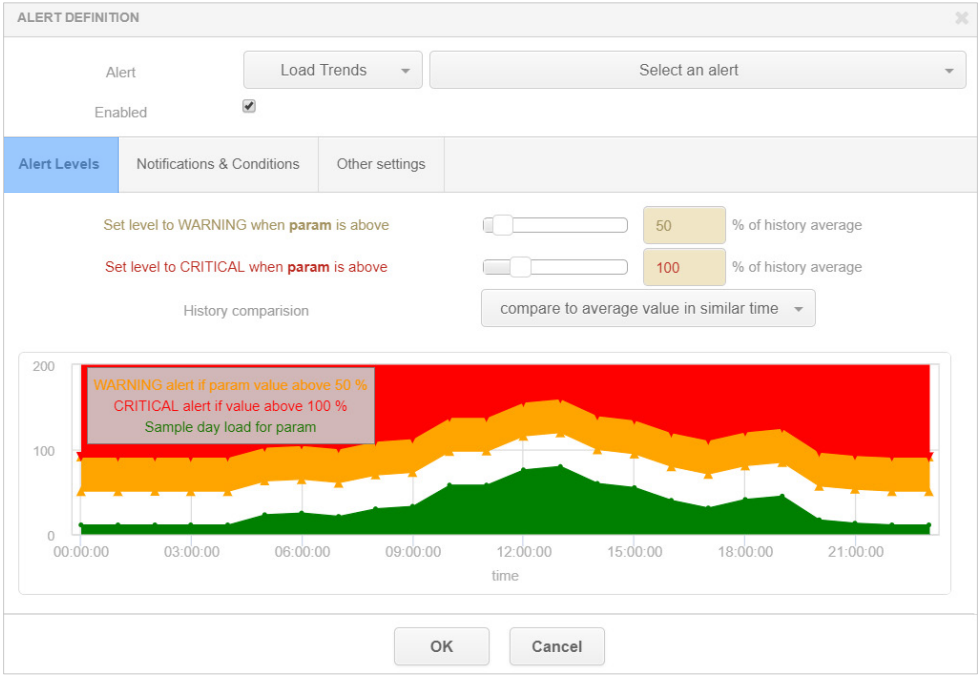
Anomaly Monitor - How does it work?

DBPLUS
better performance

The alert definition consists of:

Determining the alarm threshold value:

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



Anomaly Monitor - How does it work?

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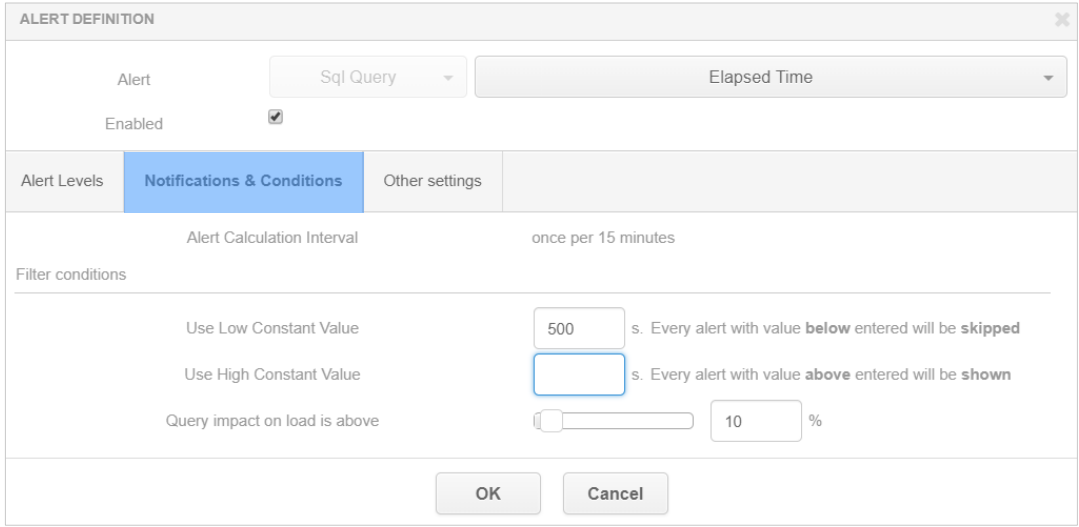
The alert definition consists of:

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)



Anomaly Monitor - problem definitions

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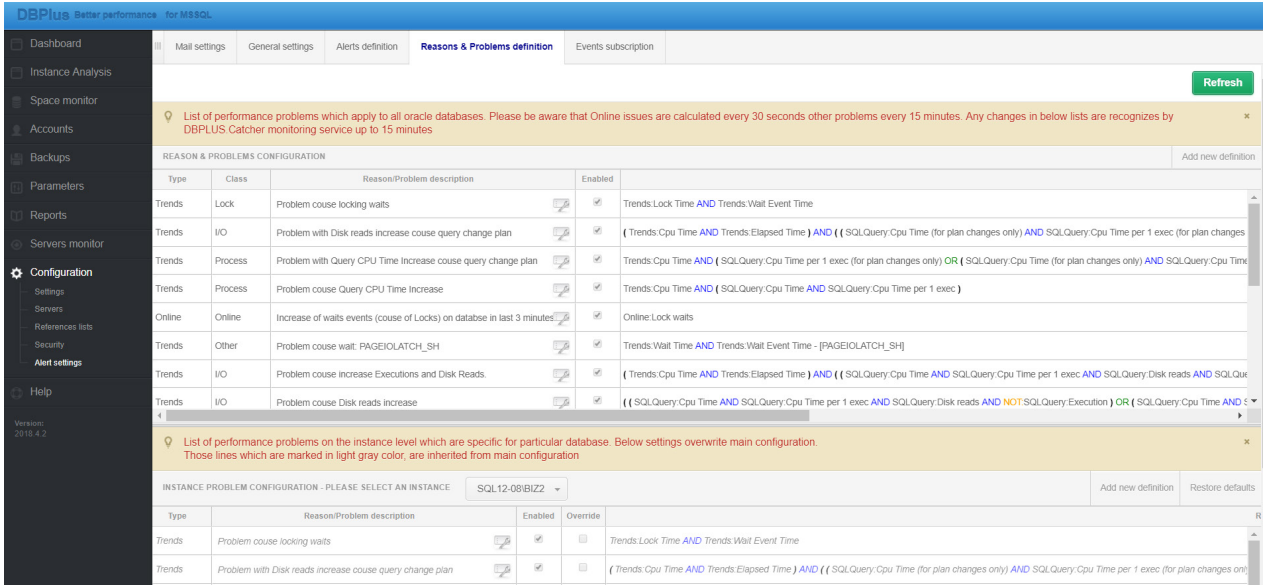
Defining the problem consists of indicating the cause of the problem. It can be determined by configuring a rule consisting of predefined alert definitions.

Configuration consists of:

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



Anomaly Monitor - problem definitions

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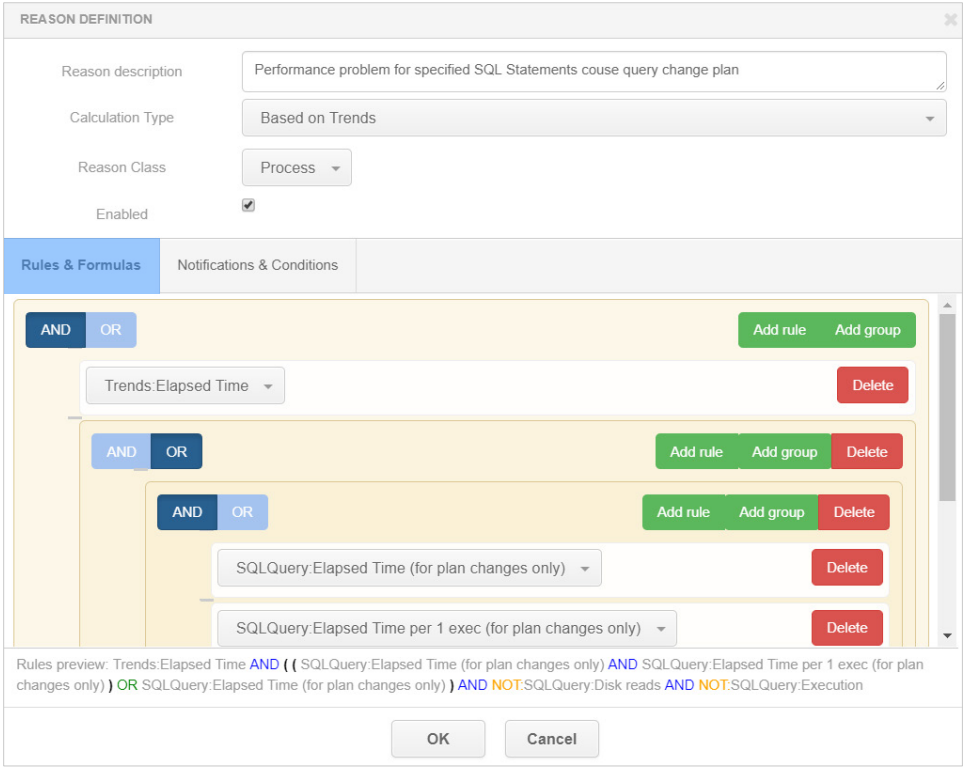
The next stage of configuration consists of:

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



Access management

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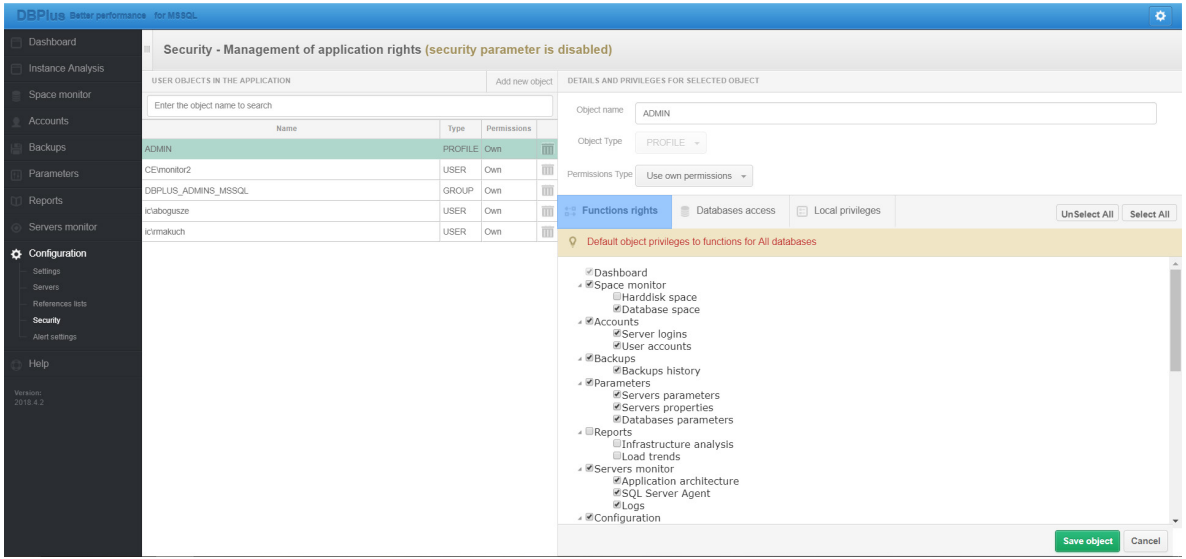
It is possible to grant access to individual instances and the screens in the application.

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

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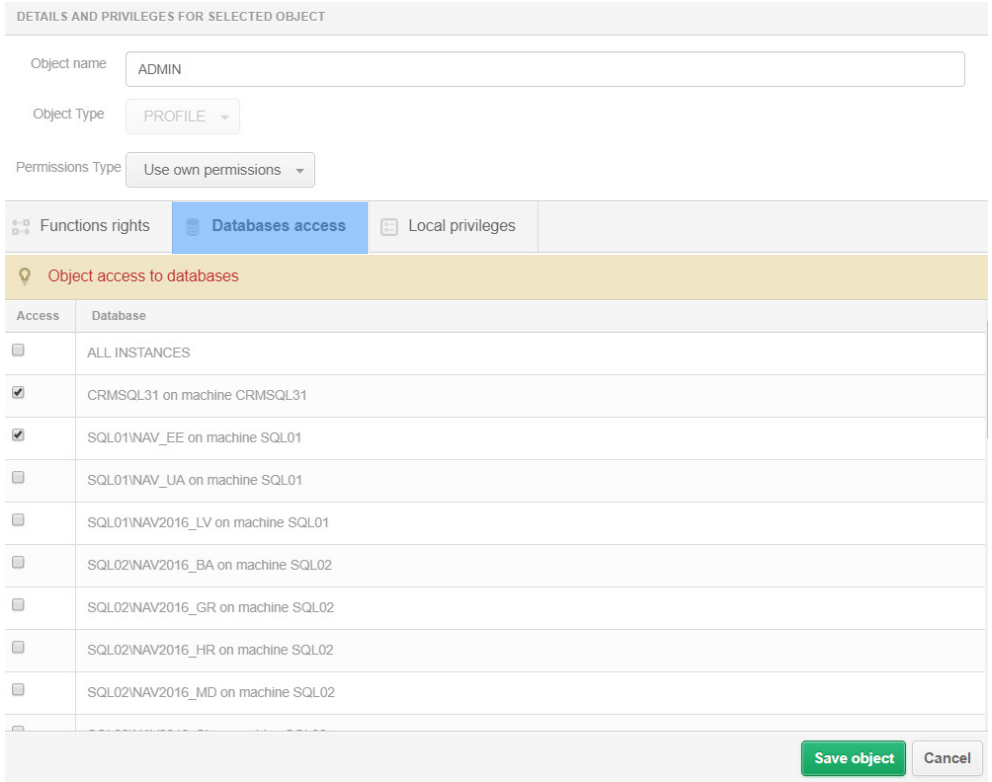
Own permissions (Use own permissions).

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.



Access management

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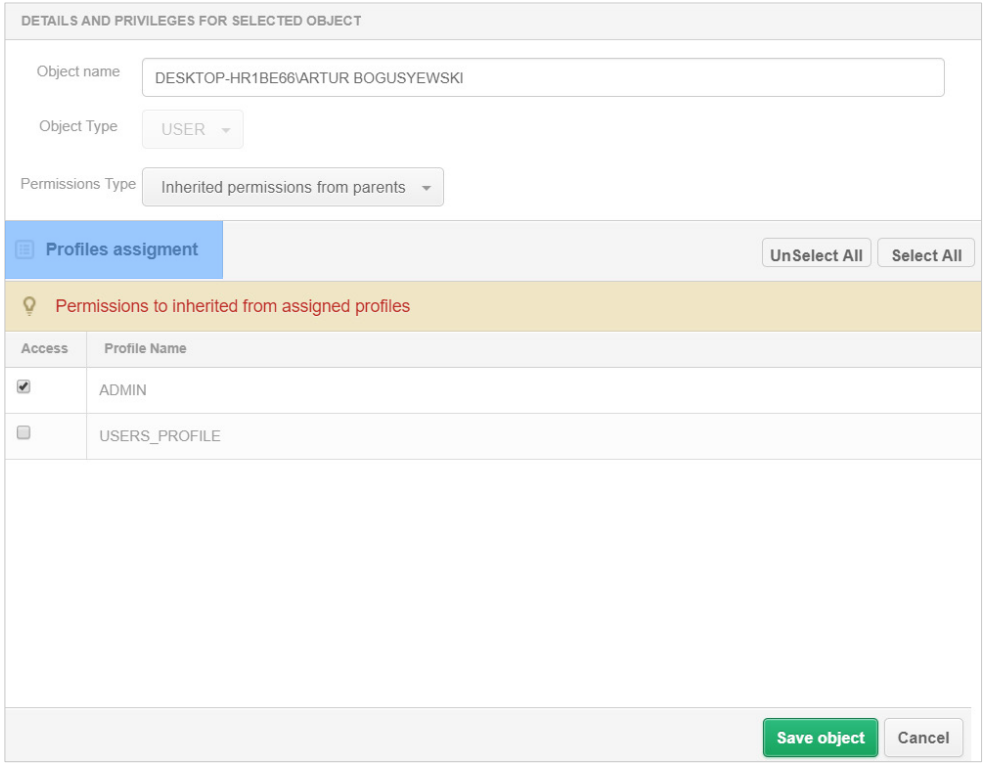
Inherited permissions (use permissions Inherited from parents).

- 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.



Access management

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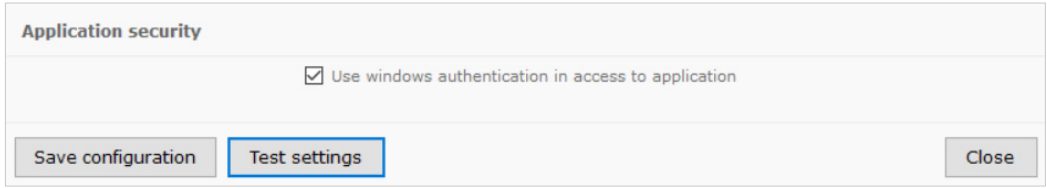
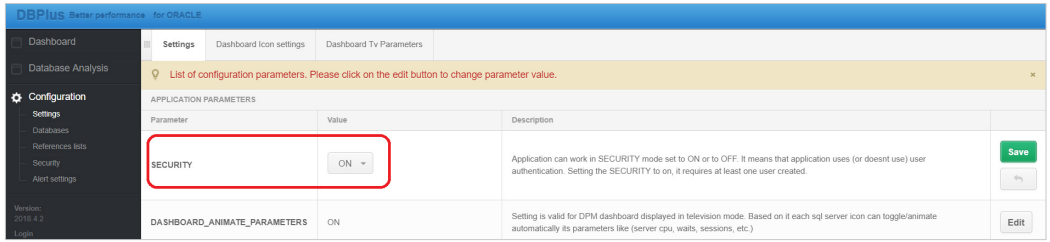
Access management is set on two levels:

- DBPLUS Configuration Wizard:
  Applications settings > Application Options > Configure



- DBPLUS Performance Monitor:
  Configuration > Settings > SECURITY parameter



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Thank you

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