

DBPLUS Performance Monitor
description of changes in versions
2018.3.1, 2018.3.2

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Below is a list of changes to the MSSQL database monitoring system, DBPLUS Performance Monitor.

1 New in versions 2018.3.1, 2018.3.2

1.1 Changes in alert functioning

The new version of the application expands the alert customisation options. A new feature for defining Problem Reasons and setting related alert rules has been added. New alert definitions have been added as well.

1.1.1 Setting Problem Reasons

The essential change is related to the new approach to alert definitions. A **Reasons & Problems definition** has been added to the **Configuration > Alert Settings** screen, enabling problem reasons to be assigned based on defined alerts.

In the new version, alert configuration has been divided into two steps:

- selecting and configuring relevant CRITICAL/WARNING thresholds for individual alert types,
- defining rules based on configured alerts, and assigning reasons of problems.

In order to implement the changes, the alert view in the **Alerts definition** has been modified. Information on this page is presented in columns:

- alert type,
- alert description,
- availability,
- warning level,
- critical level.

The page only shows alerts that have been added to the configuration. If an alert has not been configured, it must be added using the **[Add new alert]** button.

ALERTS CONFIGURATION




Alert type	Alert description	Enabled	Level value WARNING	Level value CRITICAL
Online	Alert if database is not available	<input checked="" type="checkbox"/>		
Online	Total Waits	<input checked="" type="checkbox"/>	200 %	400 %
Online	Lock waits	<input checked="" type="checkbox"/>	200 %	400 %
Online	Latches	<input checked="" type="checkbox"/>	100 %	200 %
Online	Server CPU utilization	<input checked="" type="checkbox"/>	300 %	500 %
Load Trends	Elapsed Time	<input checked="" type="checkbox"/>	50 %	100 %
Load Trends	Wait Time	<input checked="" type="checkbox"/>	30 %	80 %
Load Trends	Lock Time	<input checked="" type="checkbox"/>	20 %	50 %

INSTANCE ALERTS CONFIGURATION - PLEASE SELECT A DATABASE: T14

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 %

Alerts can be configured for all or only for dedicated SQL instances. At any time you can delete a previously defined alert using the [Key] button and selecting the "Delete" option; this will remove the alert from the configured alert list.

Another option is to disable an alert by deselecting the 'Enabled' checkbox. This can also be done by pressing the [Key] button and selecting the Edit option.

ALERTS CONFIGURATION					Add new alert
Alert type	Alert description		Enabled	Level value WARNING	Level value CRITICAL
Online	Alert if database is not available		<input checked="" type="checkbox"/>		
Online	Total Waits		<input checked="" type="checkbox"/>	200 %	400 %
Online	Lock waits		<input checked="" type="checkbox"/>	200 %	400 %

Adding new alert definitions has also been changed in the new version. By defining specific alerts, they are no longer related to other alerts. Depending on the type of alert, reference values are set differently. For Load Trends and I/O Stats alerts, thresholds are set based on historical (reference) values.

ALERT DEFINITION

Alert: Load Trends Cpu Time

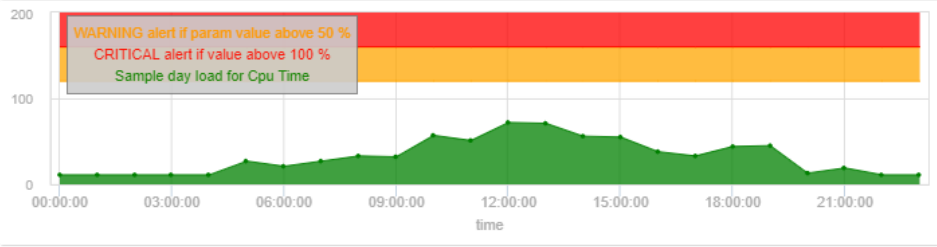
Enabled:

Alert Levels: Notifications & Conditions Other settings

Set level to WARNING when Cpu Time is above: % of max from history

Set level to CRITICAL when Cpu Time is above: % of max from history

History comparison: compare with maximum value



OK Cancel

The values are calculated as the average from all snaps in the given hour (min/max boundary values are ignored) for the last 30 days (default value is configurable). The calculation is done based on days marked as working days in the **General settings** tab. You can define which days are set as working days (History Days), and the number of days back that will be considered (Number of Days Back in History).

Mail settings	General settings	Alerts definition	Reasons & Problems definition	Events subscription
Elapsed Time greater than		400 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		<input checked="" type="checkbox"/> Mon <input checked="" type="checkbox"/> Tue <input checked="" type="checkbox"/> Wed <input checked="" type="checkbox"/> Thu <input checked="" type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun <i>We recommend to select working days only</i>		
Number of Days Back in History		30 How long history would be included in snapshot alerts calculation		

The application also enables conditioning the triggering of an alert from a general trend (for the entire instance) for the given statistic in the snap. This option is only available to SQL Query alerts. For the configuration shown below, alerts with the SqlQuery Rows processed type will be:

- ignored if the Rows processed value for the given snap for a specific Query Hash is less than 10, and if the number of Rows processed returned for the given query is less than 15% of all rows returned for queries (this number depends on the Number of Top Queries to check parameter). Additionally, the WARNING/CRITICAL alarm threshold must be exceeded.
- triggered if the Rows processed value for the given snap in the query is above 25. The alert will be triggered even if the alarm threshold is not exceeded (in this case, a WARNING with the 'Above max constant value...' comment will be displayed).

Note! The number of queries will be estimated and calculated for the given alert, depending on the Number of Top Queries to check setting available in the **General settings** tab. In the configuration shown below, the first 20 queries selected for the Elapsed Time stat will be considered.

The next step in alert configuration is assigning the rules and defining dedicated reasons for the given rule. Below is a list of default alerts pre-configured by DBPLUS analysts. Definitions can be assigned to all instances, or dedicated definitions can be created for selected SQL instances.

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

[Add new definition](#)

Type	Reason/Problem description	Enabled	Rule preview
Trends	Performance problem for specified SQL Statements 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 increase) OR (SQLQuery:Cpu Time AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution) OR (SQLQuery:Cpu Time AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution AND NOT:SQLQuery:Disk reads) OR (SQLQuery:Cpu Time AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution AND NOT:SQLQuery:Disk reads))
Trends	Performance problem for specified SQL Statements 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 AND NOT:SQLQuery:Execution) OR (SQLQuery:Cpu Time AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution AND NOT:SQLQuery:Disk reads))
Trends	Performance problem for specified SQL Statements	<input checked="" type="checkbox"/>	((SQLQuery:Cpu Time AND SQLQuery:Cpu Time per 1 exec AND NOT:SQLQuery:Execution AND NOT:SQLQuery:Disk reads) OR (SQLQuery:Cpu Time AND SQLQuery:Cpu Time per 1 exec AND NOT:SQLQuery:Execution AND NOT:SQLQuery:Disk reads))
Trends	Data reads time problem caused by slow I/O response	<input checked="" type="checkbox"/>	Trends:Elapsed Time AND (IO:Single MB Read time AND IO:Read time) AND NOT:IO:Disk reads AND NOT:SQLQuery:Disk reads
Trends	Performance problem for specified SQL Statements cause Increase Executions	<input checked="" type="checkbox"/>	((SQLQuery:Cpu Time AND SQLQuery:Cpu Time per 1 exec AND SQLQuery:Execution AND NOT:SQLQuery:Disk reads) OR (SQLQuery:Cpu Time AND SQLQuery:Cpu Time per 1 exec AND SQLQuery:Execution AND NOT:SQLQuery:Disk reads))
Trends	Performance problem for specified SQL statements cause new query	<input checked="" type="checkbox"/>	(SQLQuery:Cpu Time AND SQLQuery:New Statement Cpu Time) OR (Trends:Cpu Time AND SQLQuery:New Statement Elapsed Time)
Trends	Sql instance performance degradation	<input checked="" type="checkbox"/>	(Trends:Cpu Time AND Trends:Wait Time AND Trends:Execution) AND (NOT:SQLQuery:New Statement Cpu Time OR NOT:SQLQuery:New Statement Elapsed Time)
Trends	Increase of query processing time caused by slow I/O response	<input checked="" type="checkbox"/>	Trends:Cpu Time AND (IO:Single MB Read time OR IO:Single MB Write time)

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:

[Add new definition](#) | [Restore defaults](#)

Type	Reason/Problem description	Enabled	Override	Rule
Trends	Performance problem for specified SQL Statements cause increase Executions and Disk Reads	<input checked="" type="checkbox"/>	<input 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 increase) OR (SQLQuery:Cpu Time AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution) OR (SQLQuery:Cpu Time AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution AND NOT:SQLQuery:Disk reads))
Trends	Performance problem for specified SQL Statements cause Disk reads increase	<input checked="" type="checkbox"/>	<input 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 AND NOT:SQLQuery:Execution) OR (SQLQuery:Cpu Time AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution AND NOT:SQLQuery:Disk reads))

In order to add a new rule, first define the reason for the problem (reason description) for which you want to define the rule. Next, select the calculation type - trend-based or on-line. The most important part of the configuring the alert is setting the right rules for problem/reason occurrence. In order to add the configuration, use groups (Add group) and **AND, OR** operators to create a rule from among previously configured alerts (the **Alerts definition** tab).

REASON DEFINITION

Reason description: Data reads time problem caused by slow I/O response

Calculation Type: Based on Trends

Enabled:

Rules & Formulas | Notifications & Conditions

AND OR [Add rule](#) [Add group](#)

Trends:Elapsed Time [Delete](#)

AND OR [Add rule](#) [Add group](#) [Delete](#)

IO:Single Block Read time [Delete](#)

IO:Read time [Delete](#)

NOT:IO:Disk reads [Delete](#)

Rules preview: Trends:Elapsed Time AND (IO:Single Block Read time AND IO:Read time) AND NOT:IO:Disk reads AND NOT:SQLQuery:Disk reads

[OK](#) [Cancel](#)

In some cases, it is necessary to use negation; these are marked in red in the alert list and start with the **NOT** operator.

Once a rule is defined, selecting the right operators and completing all added alarms will display the rule below.

```
Rules preview: ( Trends:Elapsed Time AND Trends:Wait Time AND Trends:Execution ) AND ( NOT:SQLQuery:New Statement Cpu Time OR NOT:SQLQuery:New Statement Elapsed Time ) AND NOT:IO:Single Block Read time AND SQLQuery:Elapsed Time
```

1.1.2 Changes in alert information presentation

The new version modifies alert information presentation under the Database Analysis > Performance > Database Load > Alerts chart. As problem reasons have been introduced, alerts are now grouped according to the configuration for the given reason.

If the same alert is assigned to multiple problems, its information will be copied for each Reason independently.

SNAPSHOT OF ALERTS GENERATED WITHIN 15 MINUTES AT 2018-10-16 10:59:09		
Logdate	Reason name	
2018/10/16 10:59:00	Increase of query processing time caused by slow I/O response	
	Elapsed Time	Alert Type: Load Trends, The measured statistic value is 109 % higher than average , Last value: 4194 s, Reference history value: 2009 s
	Single Block Read time	Alert Type: I/O Stat, The measured statistic value is 33 % higher than average , Last value: 0.0267 s, Reference history value: 0.0201 s
2018/10/16 10:59:00	Performance problem for specified SQL statements cause new query	
	Elapsed Time	Alert Type: Load Trends, The measured statistic value is 109 % higher than average , Last value: 4194 s, Reference history value: 2009 s
	New Statement Elapsed Time	Alert Type: Sql Query, Statement hash value: 1081262630 (+) , Statistics: New Statement Elapsed Time, Last value: 913.1 , The measured statistic value has 21.8 % of database load

1.1.3 New alert definitions

New alert definitions are available in the new version:

- Load Trends group, Wait Event Time alert.

This alert measures the time for all waits in the given snap (by default) or for a specific wait if such an alarm is defined. The alert verifies whether the wait times in the given snap have exceeded the threshold value. The number of days considered depends on the *Number of Days Back in History* parameter (described below). Only top waits are verified, their number depending on the *Number of Top Waits to check* parameter. The alert can be configured for a specific wait by entering its name in the *Wait name* field. In the example below, the alert measures time for waits named *LCK_M_S*.

ALERT DEFINITION

Alert: Load Trends | Wait Event Time

Enabled:

Wait name: LCK_M_S
You can use % character to run alert with like condition

Alert Levels | Notifications & Conditions | Other settings

Set level to WARNING when Wait Event Time is above: 50 % of max from history

Set level to CRITICAL when Wait Event Time is above: 100 % of max from history

History comparison: compare with maximum value

- Sql Query group, Wait Event Time alert

The alert measures wait durations for the given query based on snap history.

ALERT DEFINITION

Alert: Sql Query | Wait Time

Enabled:

Alert Levels | Notifications & Conditions | Other settings

Set level to WARNING when Wait Time is above: 10 % of max from history

Set level to CRITICAL when Wait Time is above: 20 % of max from history

Show Plan Changes Only

OK Cancel

Additionally, to handle alerts related to wait calculations, configuration parameters have been added in the *Configuration > Alert settings > General settings* tab.

The *Number of Top Waits to check* parameter is used to handle waits calculated using trends. The calculations take into account the values of top trends, depending on this parameter.

The *Number of Days Back in History* parameter means the number of days back that are considered when calculating history.

WAIT EVENTS SETTINGS

Number of Top Waits to check: 3

Number of Days Back in History: 7 How long wait history would be considered in snapshot alerts calculation

Save settings

1.2 Improvements to query search using Find SQL

The new version improves the query search using the feature available in the **Performance>SQL Details >Find SQL** tab.

1.2.1 Improvements to query search for *Statement by text*

The new version modifies the way results are presented when searching by text fragments (Statement by text). The issue occurred when searching for queries with double spaces or queries made in multiple lines. Following the changes, when multiple statements are entered in the search field, the results are returned in two separate grids:

- FIND RESULT FOR **EXACT** QUERY TEXT MATCHING WITH – means results exactly matching the entered query,
- FIND RESULT FOR **SIMILAR** QUERY TEXT MATCHING WITH – means results based on phrases similar to those in the entered query.

A result for query search after entering "select top ?" is shown as an example. The top table returns queries that exactly match the search text "SELECT (select top ? isnull(qp.value,-?) ...".

The bottom table shows queries found for "select%top%?"
"select DISTINCT top ? "account0"..."

Statement by text

Plan Flip-Flop Statements

New statements

Statements using objects

Search

Date from: Date to: Max. returned statements:

FIND RESULTS FOR EXACT QUERY TEXT MATCHING WITH SELECT TOP ?

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
0x346F207C0F4329A2	2018-09-18	10.37	10.12	10	397 MB	9 849 872	15	493	INSERT INTO #wrk_tab_01 (rekord_id, n
0x926088A61AC81837	2018-09-18	478.52	439.11	1	197 MB	6 094 450	7 478	86 998	INSERT INTO AZURECRM365.crm_365
0x6863A0BBC4A4DF16	2018-09-18	221.91	79.24	11 606	1 MB	2 175 894	73 924	11 600	SELECT (select top ? isnull(qp.value,-?)
0x3D7B0EF32C53071B	2018-09-18	280.68	259.37	5 340	0	1 216	0	5 264	select @cpu_sq1 = isnull(SQLProcessUtil

FIND RESULTS FOR SIMILAR QUERY TEXT MATCHING WITH SELECT%TOP%?

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
0xF81B4FB563975405	2018-09-18	218.28	54.18	10	1 812 MB	707 413	0	3 449 656	SELECT acc.AccountNumber kh_kod, e
0xDBEB8D1C55BB6A21	2018-09-18	3.67	3.52	103	0 MB	2 709 717	402	103	select COUNT(*) as [#TotalRecordCount
0xA7E5508B9F702C74	2018-09-18	1 720.08	1 539.54	928	2 180 MB	857 078 250	22	124 878	SELECT DISTINCT k.data, k.rok, k.mies
0x3C34FB8ECE63EE87	2018-09-18	3.16	3.16	1	0	18 312	0	0	select DISTINCT top ? "account0" Accou

1.2.2 Other improvements to the Find SQL feature

An error related to entering large values in the *Max.returned statements* has been fixed. After a "large" value was entered, an error related to incorrect data type was displayed.

The size of the results window has been increased, the window being enlarged by an additional 10% in the new version.

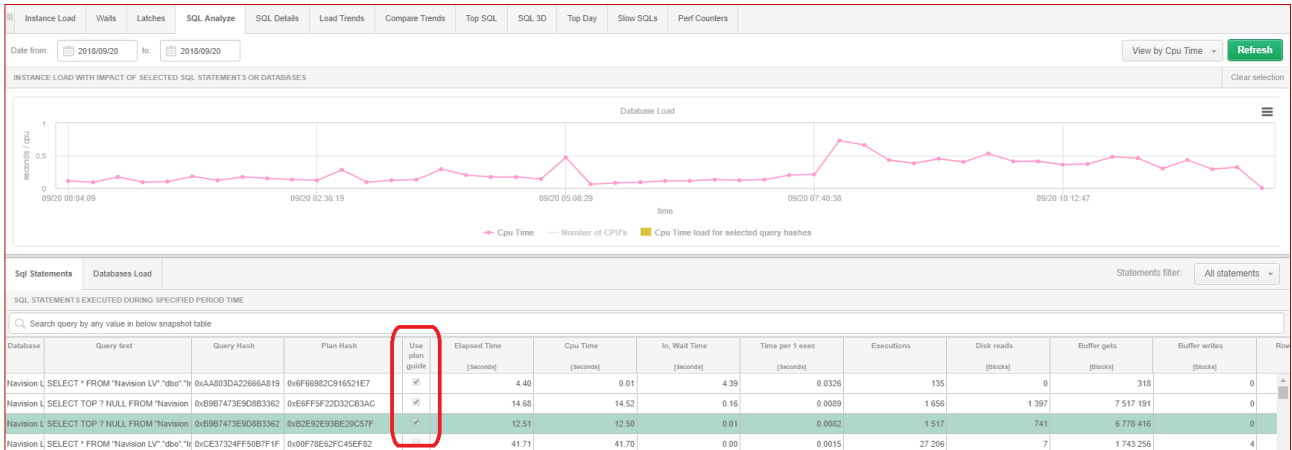
1.3 Plan Guide information presentation for queries

The new application version adds information on which queries use the Plan Guide. Other than the information always being shown in the query plan, it is also displayed in the following screens:

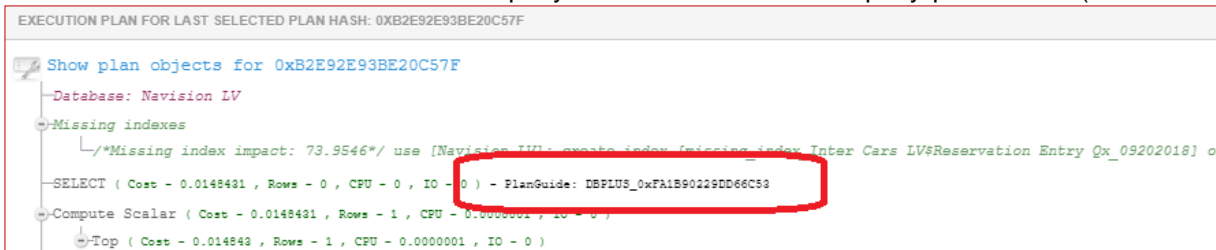
- SQL Analyze,
- Instance Load,
- Slow SQLs.

1.3.1 Performance > SQL Analyze menu

The new version adds information in the SQL Analyze tab, showing whether an order functions in the Plan Guide

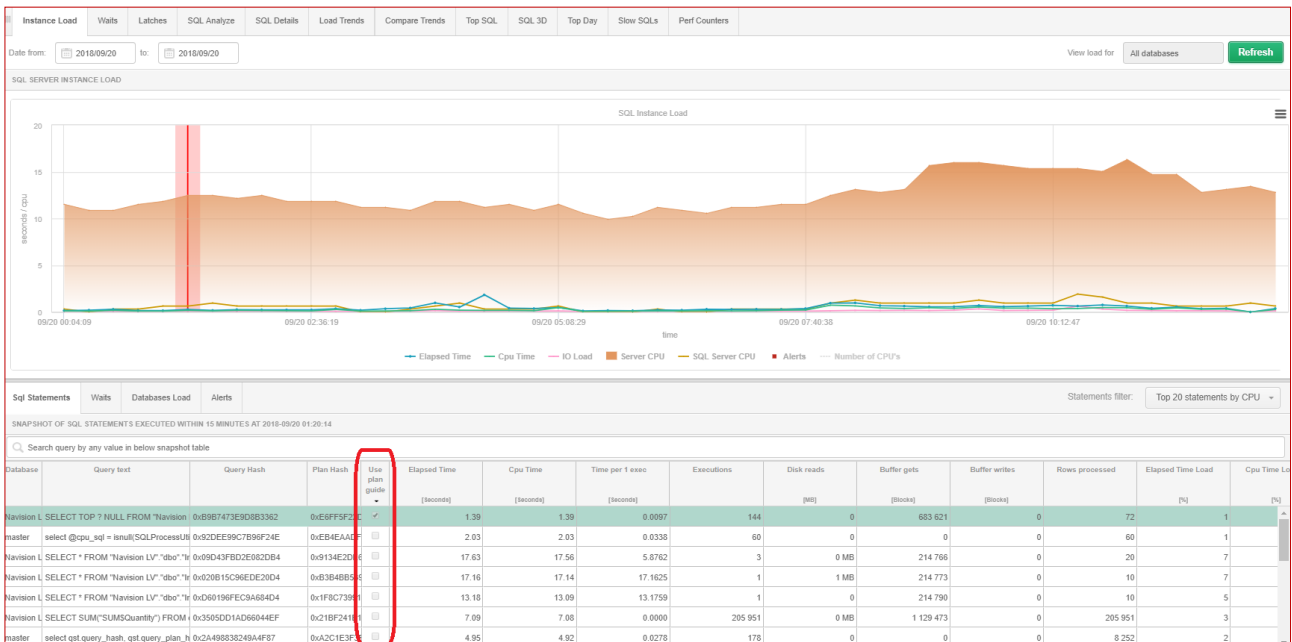


Information about the Plan Guide for the query is also available in the query plan details (Execution Plan).



1.3.2 Performance > Instance Load menu

Additional information about the Plan Guide added



1.3.3 Performance>Slow SQLs menu

Additional information about the Plan Guide added

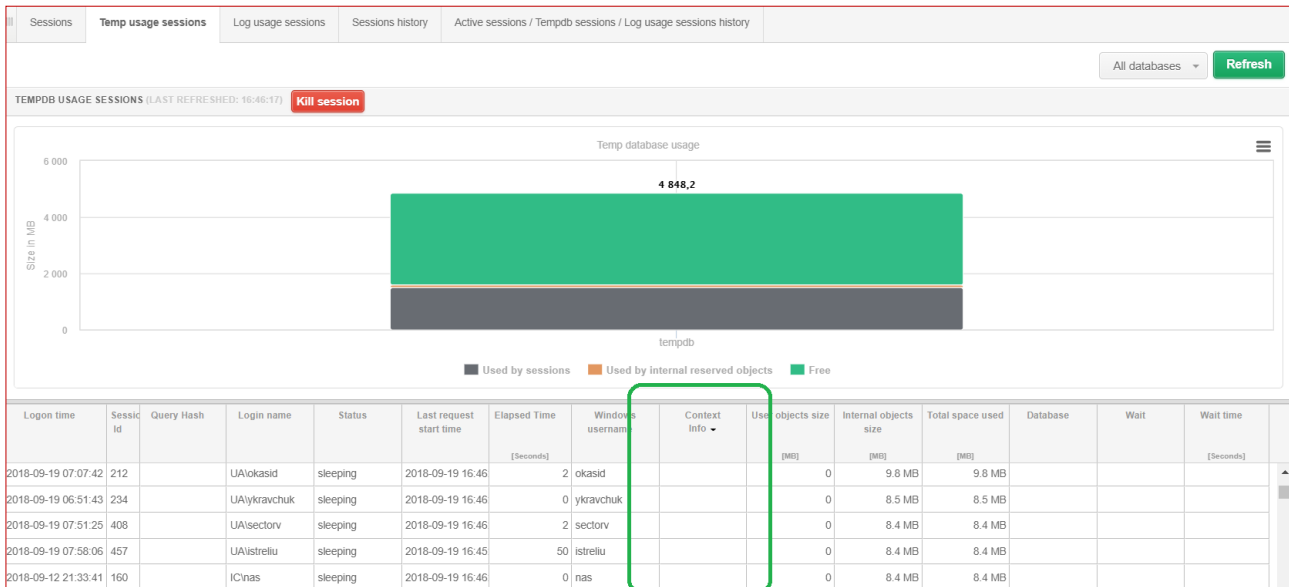
Instance Load	Waits	Latches	SQL Analyze	SQL Details	Load Trends	Compare Trends	Top SQL	SQL 3D	Top Day	Slow SQLs	Perf Counters
Date from: 2018/09/20 to 2018/09/20											
Min elapsed execution time: 1 seconds Refresh											
SQL STATEMENTS EXECUTED DURING SPECIFIED PERIOD TIME											
Search statistic by query text or hash value											
Query text	Query Hash	Plan Hash	Use plan guide	Elapsed Time [seconds]	Cpu Time [seconds]	Time per 1 exec. [seconds]	Executions	Disk reads [MB]	Buffer gets [Blocks]	Buffer writes [Blocks]	Rows processed
SELECT * FROM "Navigation LV"."dbo"."Inter Cars LVSS" 0xA803DA266 0xF66882C91 61			<input checked="" type="checkbox"/>	4.40	0.01	0.0254	173	0	407	0	4
SELECT TOP ? NULL FROM "Navigation LV"."dbo"."Inter 0xB987473E9D8 0xE6FF5F2D3 0C			<input checked="" type="checkbox"/>	15.21	15.05	0.0088	1 729	12 MB	7 800 880	0	9
SELECT TOP ? NULL FROM "Navigation LV"."dbo"."Inter 0xB987473E9D8 0xB2E92E938E9 8			<input checked="" type="checkbox"/>	12.51	12.50	0.0082	1 517	6 MB	6 778 416	0	8
SELECT TOP ? * FROM "Navigation LV"."dbo"."Inter Car 0x3106F18C229 0x4AD602F67 71			<input type="checkbox"/>	1.02	1.02	0.0027	373	0 MB	31 578	0	3 1
SELECT * FROM "Navigation LV"."dbo"."Inter Cars LVSC 0xF88454FDC2D 0xDB753F4C1 17 1			<input type="checkbox"/>	1.02	1.01	0.3416	3	1 MB	220 646	0	1
SELECT * FROM "Navigation LV"."dbo"."Inter Cars LVSK 0x74A85ABA89 0xA1DEEB16 4E			<input type="checkbox"/>	1.03	1.02	0.0034	302	0 MB	145 934	0	1

1.4 Sessions screen

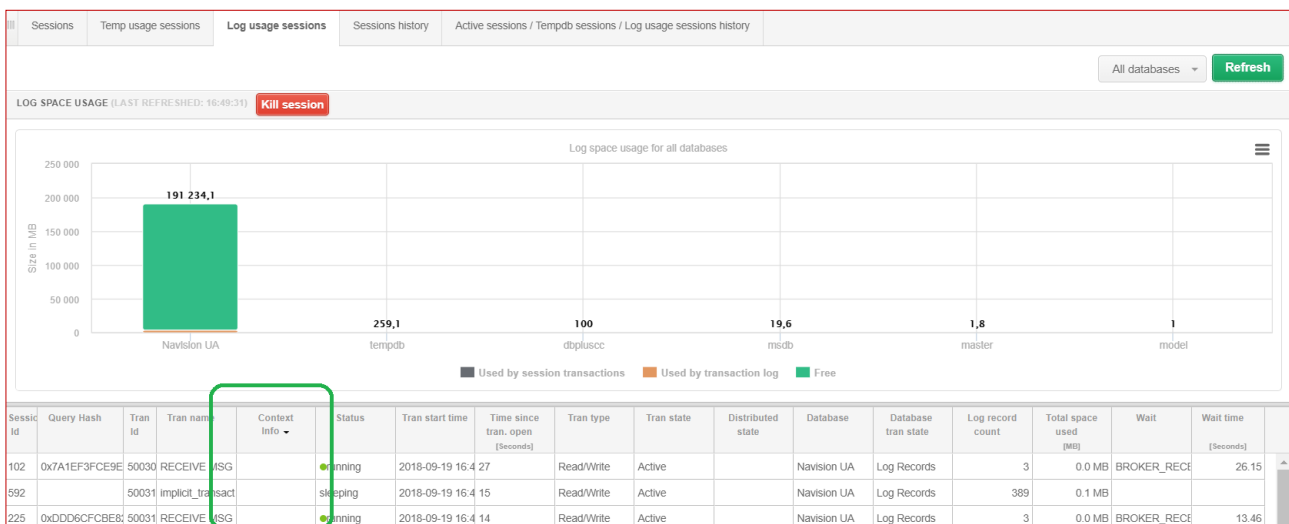
The new version adds information about Context Info, downloaded from the session executed.

1.4.1 Context Info column added

Context Info for the given session has been added to the session screen in the Temp Usage Sessions tab



and in the Log Usage Sessions tab.



1.4.2 Tempdb usage history information added

The new version adds information on the history of sessions using Tempdb. The information can be found by entering the SQL instance (Instance Load), then the **Sessions** menu and the **Active sessions/Tempdb sessions/Log usage sessions history** tab.

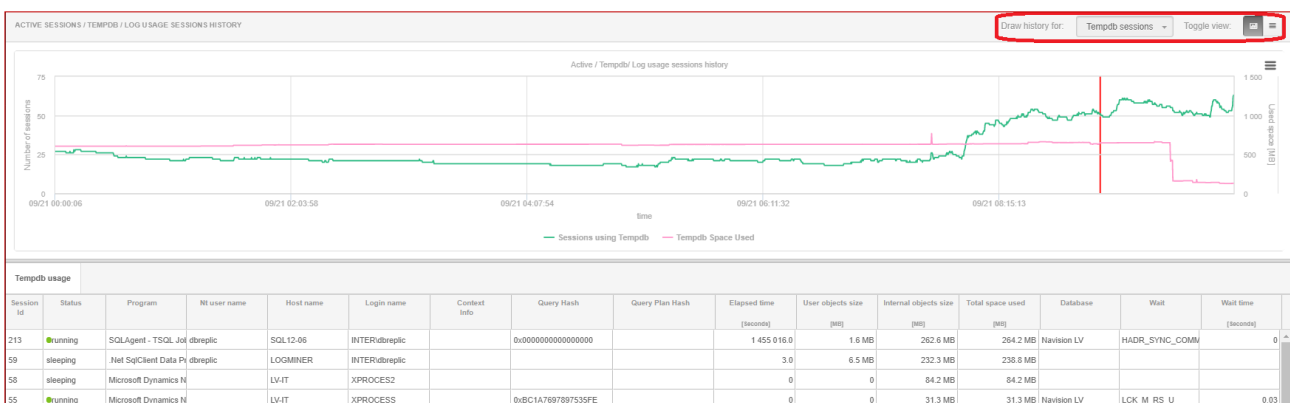
Logdate	Active Sessions	Sessions using Tempdb	Tempdb Space Used (MB)	Log Usage Sessions	Log Usage Record Count	Log Space Used (MB)
2018/09/21 10:18:15	1	63	130.6 MB	0	0	0
2018/09/21 10:18:00	1	62	130.1 MB	0	0	0
2018/09/21 10:17:45	2	56	129.3 MB	0	0	0
2018/09/21 10:17:30	1	55	128.9 MB	1	3	0
2018/09/21 10:17:14	1	53	128.6 MB	1	25	0
2018/09/21 10:16:59	1	53	128.5 MB	0	0	0
2018/09/21 10:16:44	1	53	128.5 MB	1	3	0
2018/09/21 10:16:28	2	53	128.5 MB	0	0	0
2018/09/21 10:16:13	1	53	128.5 MB	0	0	0

Session id	Status	Program	Nt user name	Host name	Login name	Context info	Query Hash	Query Plan Hash	Elapsed time (seconds)	User objects size (MB)	Internal objects size (MB)	Total space used (MB)	Database	Wait	Wait time (seconds)
58	sleeping	Microsoft Dynamics N		LV-IT	XPROCESS2				1.0	0	84.2 MB	84.2 MB			
55	sleeping	Microsoft Dynamics N		LV-IT	XPROCESS				0	0	31.3 MB	31.3 MB			
128	sleeping	Microsoft Dynamics N (#aleje)		LV-TS01	LV\KALEJS				125.0	0	1.5 MB	1.5 MB			

The Tempdb use history information includes:

- **Session id** – user session ID,
- **Status** – session status: running, sleeping,
- **Program** – name of the program into which the instance was logged,
- **Nt user name** – user name in the operating system into which the SQL instance was logged,
- **Host name** – name of the machine into which the instance was logged,
- **Login name** – SQL instance user name,
- **Context Info** – value of the context_info parameter set at the session level,
- **Query Hash** – ID of the order currently* being executed (*means that an order is currently being executed with an accuracy specified by the MSSQL database),
- **Query Plan Hash** – plan ID of the order being executed,
- **Elapsed time** – session duration,
- **User objects size** – space used by the user,
- **Internal objects size** – space used by internal objects,
- **Total space used** – total space used,
- **Database** – database within which the SQL order is being executed,
- **Wait** – session wait type name,
- **Wait time** – wait duration.

A chart showing information on Tempdb space use and number of sessions is also available.



1.4.3 Improved visibility of redundant records in the sessions screen

The new version fixes the issue visible in the **Sessions>Log usage sessions** menu and the **Log usage sessions history** tab, related to displaying redundant information about the same session. The issue occurred when multiple requests/cursors were opened in the application code within the same session. This caused multiple lines for the given session to be displayed. The issue has been fixed by calling only the last request opened for the given session.

1.5 Rights in the DBPLUS Configuration Wizard console

The new version fixes the IIS configuration process.

1.5.1 Fixed IIS configuration for Windows Server 2016/Windows 10

In the previous versions, if DBPLUS Performance Monitor was installed on a server running Windows Server 2016 or Windows 10, an issue with configuring IIS occurred - in some cases the process and the entire configuration console froze. This required restarting the configuration. The issue was related to reading the StandardOutput buffer. The new version fixes this issue.

Issue with asp.net installation. Default versions of the asp.net software are assigned to each Windows operating system. An issue with correct IIS installation occurred when installing the application on older system versions with limited access to installing newer software versions.

The issue has been fixed by assigning specific asp.net versions to specific OS versions.

1.5.2 Improved repository database configuration process for MSSQL AZURE

The new version adds an improved DBPLUS Performance Monitor installation process. One step in the installation process is the creation of a repository database on a selected SQL instance. The repository creation process in the MSSQL version, unlike others, does not perform the AutoClose operation, which in previous versions would freeze the installation process.

1.6 Changes in DBPLUSCATCHER monitoring service

The new version implements several improvements to monitoring handling.

1.6.1 Change in parameter settings

The new version provides the ability to set more frequent calls to the monitored instance. This setting can be modified in the Configuration>Settings menu. More frequent data downloads can only be set from a specific SQL instance (global settings applicable to all SQL instances cannot be changed). In the new version, the minimum value that these parameters can be changed to is 1 second.

LOCKING_SNAPSHOT_FREQUENCY - The interval time in seconds between each snapshot of locks made by the DBPLUS CATCHER service. The parameter can be configured separately for each instance. If locks occur frequently, consider a lower LOCKING_SNAPSHOT_FREQUENCY value. If locks occur rarely, use a larger value.

CURSOR_SNAPSHOT_FREQUENCY - The interval time in seconds between each snapshot of FETCH API open cursor statements, made by the DBPLUS CATCHER service. The parameter can be configured separately for each instance. If locks occur frequently, consider a lower LOCKING_SNAPSHOT_FREQUENCY value. If locks occur rarely, use a larger value.

1.6.2 Updated NON-performance wait dictionary – CXCONSUMER

A new wait that **does NOT belong to the performance wait group** has been added to the DBPLUS Performance Monitor dictionary - CXCONSUMER.

Eliminating the CXCONSUMER wait enables faster analysis of performance issues.

1.7 Improvements to the SQL Analyze page

The new version fixes an issue with incorrectly displayed loads if the 'Number of CPUs' option was selected. If the CPU number was selected, the parameter displayed 100% regardless of the queries selected. This issue has been fixed.



1.8 Changes to the Performance>SQL Details screen

In the new version, the query details page in the Performance>SQL Details tab displays an additional *Versions count* column in the grid after pressing the Refresh button if the *Online values* checkbox is selected.

The number displayed in the column is the number of versions of the given query (Query_Hash) found for the given plan (Plan Hash) at the given moment in the shared pool.

Numbers greater than 1 mean that the same query may have been made, for example, with different parameters, or that settings of the sessions making the queries are different (e.g. different OPTIMIZER_MODE for the given sessions).

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

0x9F245582D3AF13FD Online values **Refresh** Find SQL

STATEMENT TEXT

SET @allow = ISNULL((select 1 from crm_all_hosts WHERE host = host_name()), 0)

SQL STATISTICS Show values per 1 executions

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 (%)	Versions count	Gen. Num	Elapsed Time per 1 Exec (seconds)
0x5623299B51FE	1.4371	1.2749	271 084 889	271 084 889	2	0.02 MB	542 169 778	0	100	1	1	0.0000

Explain plan Graph

Show plan objects for 0x5623299B51FE5BD0

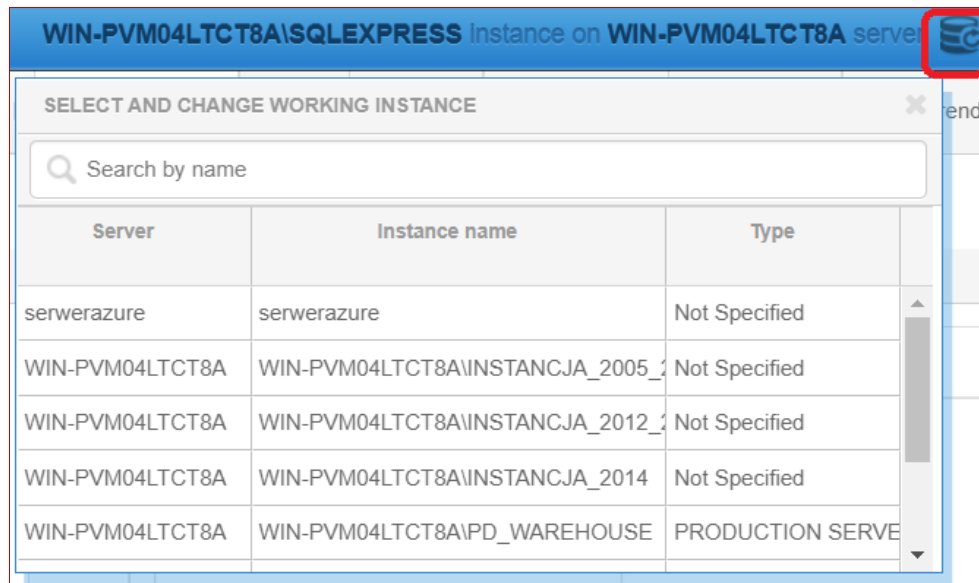
```

Database: IT
--SELECT ( Cost = 0.00228964 , Rows = 0 , CPU = 0 , IO = 0 )
--Compute Scalar ( Cost = 0.00228964 , Rows = 1 , CPU = 0.0000001 , IO = 0 )
--Left Outer Join-Heapked Loops ( Cost = 0.00228964 , Rows = 1 , CPU = 0.00000416 , IO = 0 )
--Constant Scan ( Cost = 0.000001197 , Rows = 1 , CPU = 0.000001197 , IO = 0 )
--Compute Scalar ( Cost = 0.0022892 , Rows = 1 , CPU = 0.0000001 , IO = 0 )
--Clustered Index Seek ([all_hosts].[all_hosts]) ( Cost = 0.002291 , Rows = 1 , CPU = 0.0001981 , IO = 0.00128 )
--Sign. Compilation Time: 1 ms
  
```


1.9 General improvements

1.9.1 Improved switching between SQL instances in the application

The new version fixes the issue with switching between SQL instances. The issue resulted in switching not functioning in the Memory menu, Performance>Top SQL menu and Performance>SQL 3D menu screens. This issue has been fixed.



1.9.2 Corrected selection of points on charts

The new version corrects the way points on charts are selected. In the previous version, if the user clicked too far from a point on the chart, an incorrect snap was selected. In the new version this has been fixed and works more efficiently.

The improvement applies to charts in the Performance menu, in the Instance Load/Waits/Latches tabs.

1.9.3 Fixed data display on charts on the Reports – Load Trends page

The new version of the application fixes data display in charts. The previous version had an issue with data sorting and charts were generated incorrectly in some cases. This issue has been fixed.

