DBPLUS Performance Monitor description of changes for version 2018.2.1

Contents

Below is a list of changes in the DBPLUS Performance Monitor system for monitoring MSSQL databases.

1 New features in version 2018.2.1

1.1 *Execution plans*

1.1.1 Improved generation of the PLAN GUIDE Script

The new version features improved functionality for Plan Guide Script generation. The modification consists in verifying the query schema for which a Plan Guide is generated.

If a query is run from the procedure/trigger/function level ..., a page with the completed Object name field is displayed, including the schema name and the object name separated by dots.

If a query is run from the application level, the Parameters definition field is displayed with the completed list of parameters (if used in the query).

1.2 *Memory screen*

In the new version, the Memory screen (Instance Analysis->Memory) contains a new functionality: the presentation of a summary of Total Server Memory.
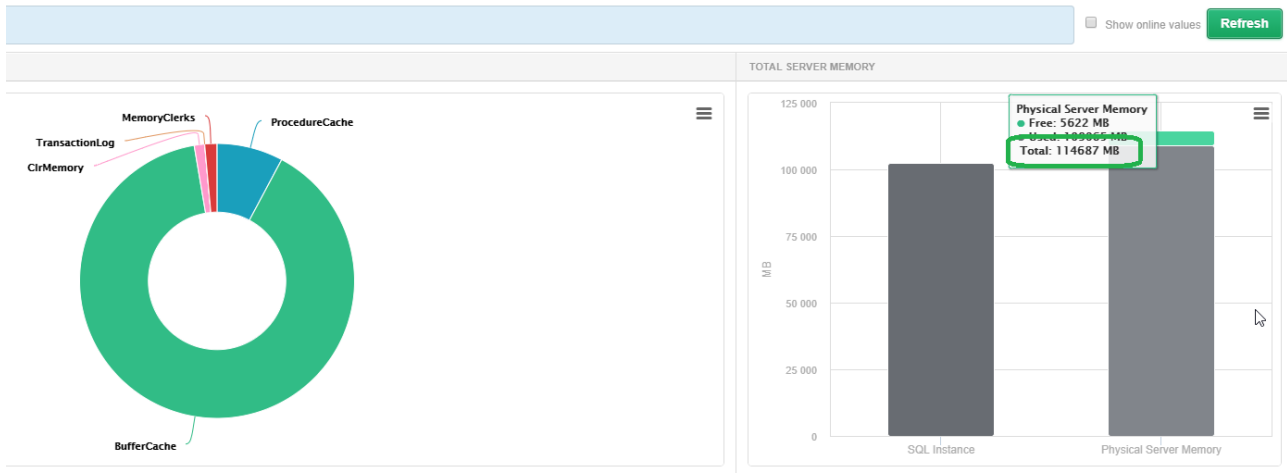
1.3 *Latches Screen*

The Latches screen (Instance Analysis -> Latches) features improved presentation of information about the level of Latches within a given snap (a range of 15 minutes).
The chart shows the value of a given type of Latch per second within the indicated 15 minute range.
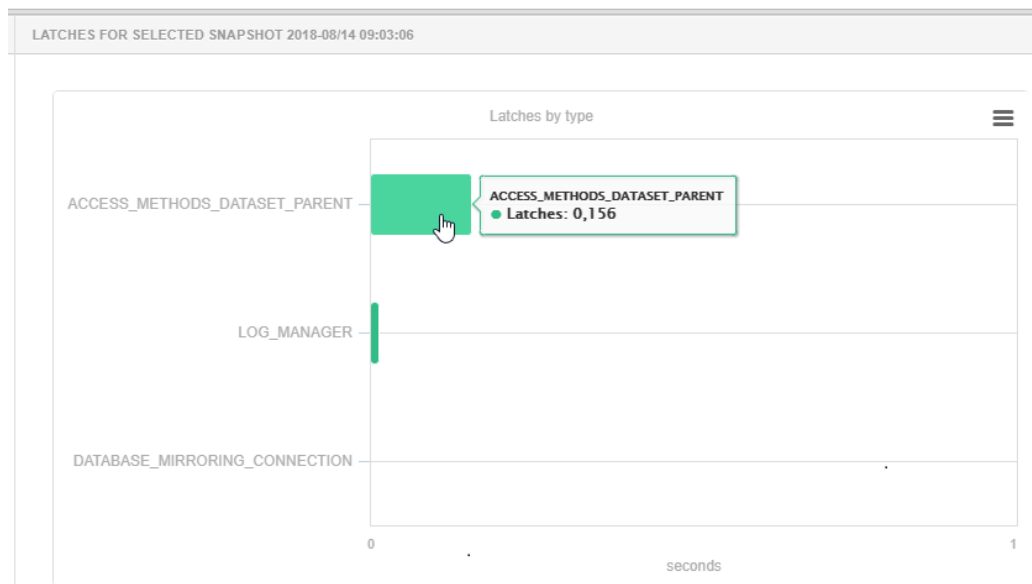
1.4 *Instance change in the Instance Analysis module*

Upon entering the Performance module of the system through Instance Analysis, the identifiers of a selected SQL instance show up on the upper bar of the screen.

A functionality was added here to allow switching between monitored services.
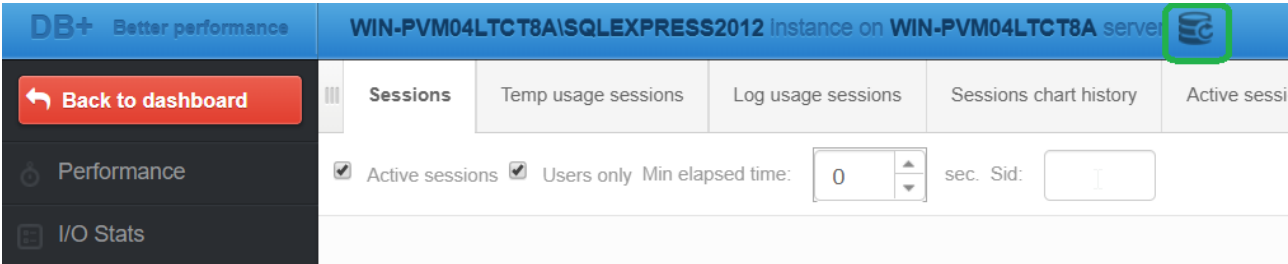
Clicking on the "database" icon results in displaying a table with monitored SQL instances:
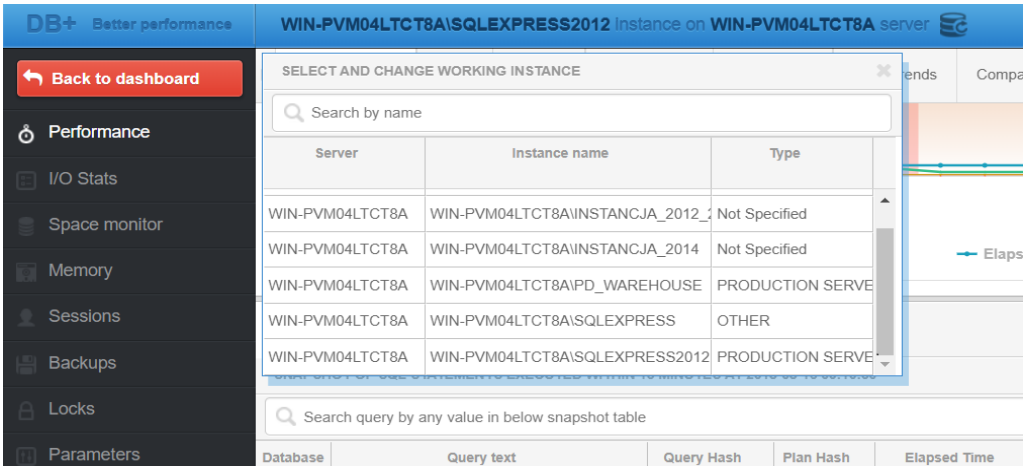
After switching, the system remains within the same screen. The option improves system ergonomics, in particular it allows rapid assessment of certain indicators/parameters for selected SQL servers.

1.5 *Sessions screen*

1.5.1 Error correction for the MSSQL AZURE version

The problem with the presentation of information on sessions that occurred only with this SQL Azure instance version has been resolved. The problem consisted in collecting information about tasks assigned to the session that is available only to users with administrative rights in this SQL service version.

1.5.2 History screen of active sessions and logging sessions use

In the new version, the screen showing sessions (Instance Analysis -> Sessions ->Active sessions / Log usage sessions history) contains a new functionality for presenting sessions in the form of a chart. To use it, it is necessary to switch to chart view, as shown in the picture below.
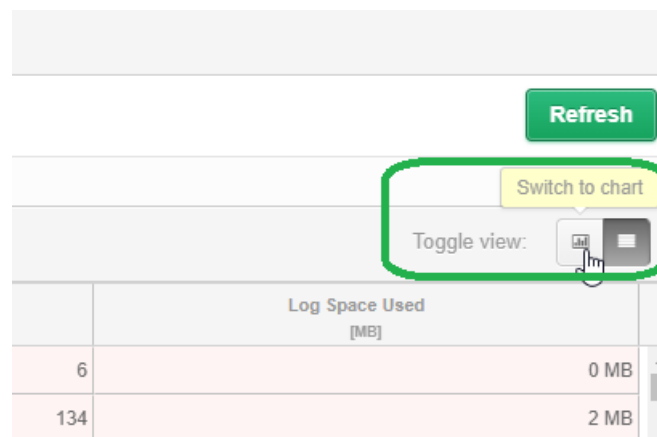
Data in each chart are presented for 30-second samples. There are several charts to choose from:

- Active sessions,
- Log usage sessions,
- All statistics.

Active Sessions chart
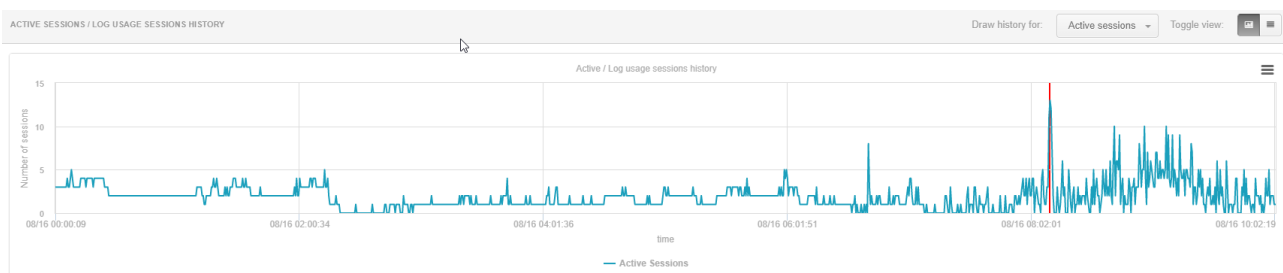
Log Usage Sessions chart
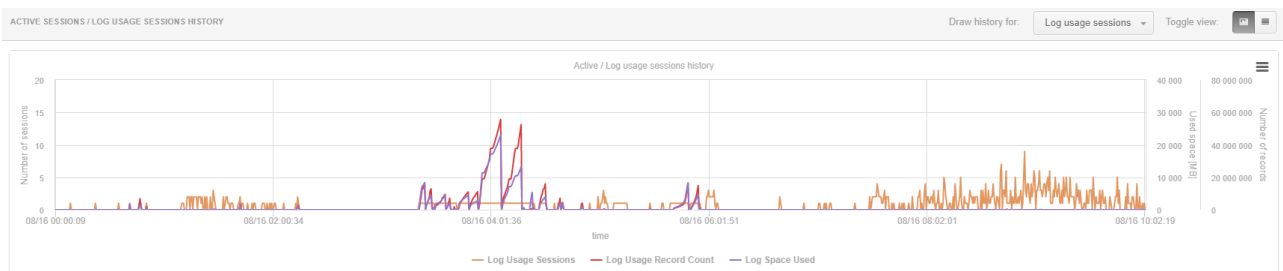
Apart from information on the number of sessions, the chart also contains information about the number of records used within the currently active session and the space used in a given moment of the currently active session.

All Statistics chart
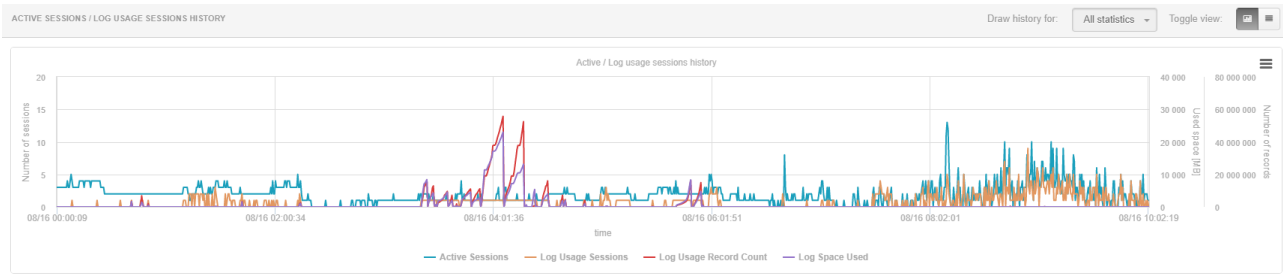
Charts can be presented only if no filter is used. If a filter is selected, access to charts will be blocked.

1.5.3 Problem with the SQL DATEDIFF function solved

There may have been a problem with the conversion of session time in queries used to present information on sessions (active / log usage / tempdb usage).

The problem was related to the use of the SQLDATEDIFF function, which returns time differences in the INTEGER format. The problem may have occurred for very long sessions or blocks.

1.6 *Space Monitor screen*

The Space Monitor screen (Instance Analysis -> Space Monitor) includes a new functionality for searching objects by name.

The problem with chart presentation in the History tab has been resolved.

1.6.1 Searching objects by name

The Space Monitor screen includes a new functionality for searching objects by name. To use it, enter the object name or its part in the field (the character size is of no importance).

In addition, the search speed and result presentation have been improved.

1.6.2 Improved chart presentation

The new version resolves the problem with chart presentation after switching between databases and in the absence of values for a given day.

1.7 *Improvements in SQL Find*

A new functionality has been added in the Sql Find query search module. The option is available on the following page: Instance Analysis -> Performance ->SQL Details ->Find SQL.

The search of *Statement by text* queries including special characters has been improved.

1.7.1   New functionality for searching by object

The new version includes a new functionality for searching queries in a database by the name of the object used as part of the query.

Statement by text		✕
Plan Flip-Flop Statements	Enter the object name	
New statements	Date from: 📅 2018/08/14 00:00 Date to: 📅 2018/08/14 23:59 Max. returned statements: 100 ▲▼	
Statements using objects		Search
CLICK ON [ADD TO SQL DETAILS] BUTTON (ICON WITH +) TO ADD QUERY IDENTIFIER TO QUERY HASHES TOOLBAR LIST		

To use it, enter the (full) object name and select the date range.

| Statement by text		✕
Plan Flip-Flop Statements	exp_promocje_do_prok	
New statements	Date from: 📅 2018/08/13 00:00 Date to: 📅 2018/08/14 23:59 Max. returned statements: 100 ▲▼	
Statements using objects		Search
CLICK ON [ADD TO SQL DETAILS] BUTTON (ICON WITH +) TO ADD QUERY IDENTIFIER TO QUERY HASHES TOOLBAR LIST		

Query Hash	Elapsed Time [Seconds]	Cpu Time [Seconds]	Executions	Disk reads [MB]	Buffer gets [Blocks]	Buffer writes [Blocks]	Rows processed	Query text
0x6CC56F3BADFF6447	18 358.93	17 667.94	2	0 MB	435 536	0	645 321	INSERT OPENQUERY(SAFCIO_IC_PREMIA, ?) /* INSERT INTO [S.
0x16D29E53C361BFB7	983.70	20.96	3	0 MB	256 375	0	2 401 112	SELECT DISTINCT p.pron, p.prop, p.kh_kod, p.typ typ, ? [status], p.i
0xCF2F603F1EBEA140	6.04	6.04	2	0 MB	1 540 598	6 872	0	INSERT INTO crm.exp_promocje_do_prok (pron, prop, kh_kod, typ, i
0xB3CDBC6EFD3CD...	3.47	5.59	1	0 MB	1 983 098	6 690	0	INSERT INTO crm.exp_promocje_do_prok (pron, prop, kh_kod, typ, i
0x1B37880C93F47749	2.10	2.10	34	0 MB	1 266 335	18	0	INSERT INTO crm.exp_promocje_do_prok (pron, prop, kh_kod, typ, i

In the result, the system shows a list of queries run in the selected time range that used the object searched for in the execution plan.

1.7.2 Improved query searches with special characters

The new version includes an improved search of "Statement by text" queries including special characters. The previous version did not allow searching queries containing certain characters (e.g. "+"). This has been corrected.

1.8 *Changes in the DBPLUSCATCHER monitoring service*

1.8.1 Monitoring of queries after re-compilation

The query statistics are available in the sys.dm_exec_query_stats system view. Due to the nature of certain operations, such as statistics conversion, index updating, etc., the statistics for a selected query_hash may be recompiled.

The support for such cases has been improved in the DBPLUSCATCHER service, in the statistics monitoring procedure.

1.8.2 Long duration displaying currently active blocks or interruption of the block monitoring procedure

In specific cases where the number of inactive sessions in the SQL instance exceeded several thousand, the database engine generated a non-optimal execution plan. This considerably extended the block display time, often resulting in timeout.

The problem has been eliminated by introducing hints to the technical query used by the procedure.

1.8.3 Backup monitoring procedure

The new version does not have any problems with timeouts in the Backups screen (Instance Analysis ->Backups).

The problem **may have appeared** in the first hours after the monitoring of a given SQL instance was started and resulted from the necessity to collect a larger amount of data than usual as part of normal operations.

1.8.4 Improvements in the Alert module

A problem in the alert calculation procedure occurred for performance trend statistics and I/O.

The problem related to cases where trends included gigantic deviations in selected statistics - events of this type disrupted proper alert calculation.

1.9 *General improvements*

1.9.1 Improved chart presentation

The new version features the improved presentation of data in charts. Large values currently include thousand separators (space). This applies to values on the Y axis and values shown after clicking on any chosen chart point in tooltip.
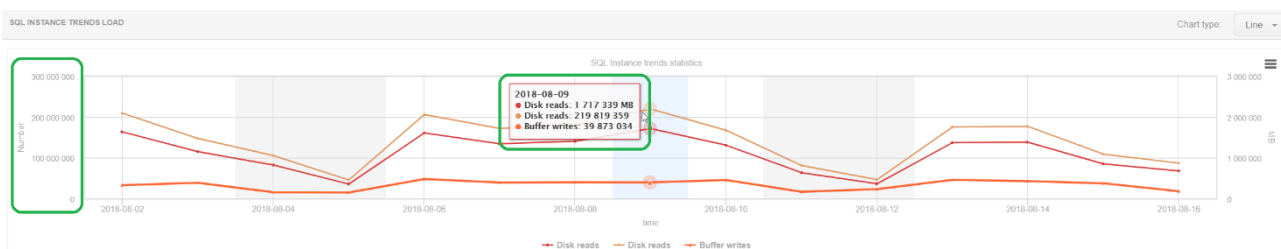
1.9.2 Improved Slow SQL presentation performance

General improvement in the speed of data presentation in the Slow SQL screen (Instance Analysis ->Performance -> Slow SQLs), related to the Elapsed Time filter.
This involved the removal of excessive references to technical tables and filtering by order.

1.9.3 Improved query and plan presentation performance

Improvement of query presentation speed in the Performance menu on the following pages:
- Instance Load,
- SQL Analyze,
- SQL Details,
- Top Day,
- Slow SQLs.

Hints have been added to existing queries and queries referring to DBPLUS technical tables have been improved.
The new version also includes improved functionality related to the presentation of query plans with many characters. In the new versions, query plans will be displayed faster.

1.9.4 New configuration parameters

The new version includes two new parameters controlling the operation of the DBPLUSCATCHER monitoring service:

STATEMENT_LENGTH_LIMIT	4000	Setting used during collecting statistics data for running queries. It's the maximum sql statement length that will be stored in system repository. Statements with length greater than STATEMENT_LENGTH_LIMIT will be truncated. To switch off this setting please use value 0.	Edit
STORE_ONETIME_STATEMENT_TEXT	ON	Setting used during collecting statistics data for running queries. It lets to store (or not) the statement text for the queries running only once.	Edit

- **STATEMENT_LENGTH_LIMIT**

A parameter for storing (or not) the statement text for running queries in the SQL instance. For statements with a length greater than 4,000 characters, only the first 4,000 characters will be saved. The default value is 4,000. To switch off this setting, please use the value 0.

- **STORE_ONETIME_STATEMENT_TEXT**

Another parameter that makes it possible to store (or not) the statement text for the queries running only once in the SQL instance. The parameter is on by default, which means that all information will be stored.