

DBPLUS
Performance Monitor for MS SQL
description of changes in version 2023.4

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The following is a list of changes to DBPLUS Performance Monitor for monitoring MS SQL databases.

News in version 202 3.4

1 Manage email sending from the app

In the latest version of the application, the functionality for managing the sending of email addresses informing about alerts has been modified. Alert information is sent based on events detected by the Anomaly Monitor module. This module analyzes performance trends in the monitored instance and if a problem occurs, the information will be presented in the Performance Monitor application and, if email dispatch has been configured, information about the event will be sent to the specified address.

The improvement introduced in the latest version allows full configuration of email dispatch. The user can indicate which events are to be informed by email.

Configuration is available from the Configuration - Alert settings menu under the **Events subscription** tab.

Template name	Enabled	Instances assigned	Subscribers	Reasons assigned	
Template for icadmin	<input checked="" type="checkbox"/>	All instances	icadmin@int	All reasons	
DBPLUS	<input checked="" type="checkbox"/>	Categories: BIZ, NAV-dev&test, NAV-primary, Instances: SQL22	artur.boguszewski@dbplus.pl	SQL statement - executions, SQL statement - disk reads, SQL state...	
Template for radoslaw.makuch@dbplus.pl, artur.boguszewski@dbplus...	<input checked="" type="checkbox"/>	Instances: CRMSQL	radoslaw.makuch@dbplus.pl , artur.boguszewski@dbplus.pl , jacek.wronka@dbplus.pl	All reasons	
Template for radoslaw.makuch@dbplus.pl, artur.boguszewski@dbplus.pl...	<input checked="" type="checkbox"/>	Instances: NAV_BG_P_00408, NAV_HU_S_00001, NAV_HR_P_0021...	radoslaw.makuch@dbplus.pl , jacek.wronka@dbplus.pl , SQLServerPerfor	All reasons	
Template for radoslaw.makuch@dbplus.pl	<input checked="" type="checkbox"/>	Instances: NAV_LV_P_U0213, NAV_CZ	radoslaw.makuch@dbplus.pl	New SQL statement, Change Plan, SQL statement - executions	
Template for SQLServer	<input checked="" type="checkbox"/>	Instances: NAV_UA_P	artur.boguszewski@dbplus.pl , icadmin@int	All reasons	
Template for damian.	<input checked="" type="checkbox"/>	Instances: SQL G021	radoslaw.makuch@dbplus.pl	All reasons	
Template for dbplus	<input checked="" type="checkbox"/>	Instances: SQLU0408\CDRI	radoslaw.makuch@dbplus.pl , artur.boguszewski@dbplus.pl	All reasons	

After uploading the latest application update, the email subscription data will be aggregated and grouped, a template name will be created for each entry - **Template name**.

By default, each entry will contain email sending configurations for each event (alert) **Reasons assigned** will be completed with the value All reason.

The user can add a new entry, change the configuration or delete the shipping configuration.

Adding a new configuration is possible using the **[Add new email address]** button. Within the configuration, the user first indicates for which instances you want alert information to be sent. Instances are grouped into categories. The user has the option to select the entire category or a single instance.

SUBSCRIPTION EMAIL FORM

Template name: DBPLUS Admin's Enabled

SELECT INSTANCE 7 items selected

Select All Expand All Collapse All

ENOVA-SQL01\VENOVA

▲ TECH (category)

SQLU0001\TECH01

SQLU0214\TECH04

SQLG0214\TECH04

▲ TESTING (category)

ICD_FC test

EMAIL ADDRESS LIST [Add new email](#) 1 email specified

artur.boguszewski@dbplus.pl

REASON / ALERTS SELECTIONS 3 reason items specified

Select All	Class Name	Reason Description
<input checked="" type="checkbox"/>	New SQL statement	New SQL statement
<input checked="" type="checkbox"/>	Change Plan	Change of the Execution Plan
<input type="checkbox"/>	SQL statement - executions	Increase query executions
<input checked="" type="checkbox"/>	SQL statement - disk reads	Increase query disk block reads
<input type="checkbox"/>	SQL statement - buffer gets	Increase query buffer block reads

The next step is to add an email address to which information about performance problems will be sent. You can add one or multiple email addresses as part of the configuration.

The last step is to select events for which information is to be sent. The list of events depends on the alerts configured in the **Reasons & Problems** tab definitions supplemented with detections sewn in the application code. By default, the following events are available:

- **SQL statement - time increase - Increase of query processing time**

Indicates an increase in the duration of the Elapsed time query.

- **SQL statement - executions - Increase query executions**

An increase in the number of executions of a given query compared to the statistics collected by monitoring.

- **SQL statement - disk reads - Increase query disk block reads**

The event reports the return of the number of data blocks read by the query under investigation.

- **SQL statement - buffer gets - Increase query buffer block reads**

The event informs about the increase in the number of blocks read in memory by the query.

- **Online -SQL instance is not available**

Event information is sent when the monitored instance is not available.

- **New SQL statement**

The event informs about a new query that is executed on the monitored instance, which accounts for a significant share of instance utilization.

- **Network I/O - High OLEDB event. Waits on remote native Sql Client call(s).**

The event examines the OLEDB wait level and compares it with historical data.

- **Network I/O - High network wait detections**

Verifies the level of waits associated with the Network I/O class.

- **Lock - High any locking wait detections**

The event reports the occurrence of blockages in the monitored instance.

- **Latch - High latches event(s).**

Verifies the latch level of the monitored instance.

- **Change Plan - Change of the Execution Plan**

It is responsible for monitoring the query plans. When a query runs on multiple plans, their statistics are compared. If it is detected that the query is running on a suboptimal plan, information about such an event is displayed as a change of execution plan.

- **Buffer I/O - Problem with I/O subsystem storage**

Informs the user about problems with the operation of the disk array.

- **Based on wait - High wait detections**

Detection examines trends for waits affecting the performance of the monitored instance. Historical data collected by monitoring is compared with the level of a given wait

2 Setting up Plan Guide from within the application

In the latest version of the application, the Plan Guide generation mechanism has been expanded. This mechanism allows you to assign an optimal execution plan to a query.

The expansion involves providing the ability to create a Plan Guide directly from within the DBPLUS Performance Monitor application.

Plan guide creation is available at the query analysis level in the Sql Details tab after clicking on the settings icon and selecting **[Generate plan guide script]**.

The screenshot displays the 'SQL Details' tab in the DBPLUS Performance Monitor application. At the top, there is a navigation bar with various tabs. Below the navigation bar, there are filters for a query ID (0x75E1CED153163587), a date range (2023/09/30 to 2023/12/28), and a time range (00:00 to 23:59). The main content area is divided into several sections: 'STATEMENT TEXT' showing a SQL query, 'SQL STATISTICS' showing a table of query performance metrics, and 'Explain plan' showing the execution plan. A context menu is open over the 'Explain plan' section, with the 'Generate plan guide script' option highlighted in red.

Plan hash	Database	Elapsed Time [Seconds]	Cpu Time [Seconds]	Rows processed	Executions	Disk Reads [Blocks]	Disk Reads [MB]	Buffers [Bloc]
0x70E419A7D8953786	Navisi	5 478.0	3 702.1	41 561 582	1 412	267 648 530	2 091 004 MB	2
0xD6E391F8D4006268	Navisi	8 945.9	5 152.1	1 368 809	23	712 855 328	5 569 182 MB	7

The window that opens will then display information about the possibility of creating a Plan Guide for the query.

The creation of the Plan guide is done through a script, the user has available options such as:

- **View** script - preview the script
- **Download** script - download script to file
- **Execute** script - **execute** the script.

If you choose to execute the script from within the application after clicking [**Execute script**], you must specify a user with administrator privileges or the owner of the database in which the guide plan will be backed up.

Attention!!! User data will be used only for one-time execution of the script and will not be saved anywhere.

To create a Plan guide, click on the [**Apply plan guide**] button.

Plan Guide from within Anomaly Monitor

Plan Guide creation is also possible from within Anomaly Monitor. If the module detects an execution plan change problem, information about the detection of a faster plan and the possibility of creating a Plan Guide to improve performance will be made available from the dedicated query level.



The Plan Guide mechanism also has its limitations, which prevent the assignment of an optimal plan for a problematic query. These limitations can be related, for example, to the design of the query itself, the existence of temporary objects or the execution of the query from the procedure level. If such a limitation is detected, the user will be informed by an applied message.



An example of a message indicating that Plan Guide cannot be set up:

PLAN GUIDE OPTIONS

Plan Guide not supported
Remarks

- Statement text use TEMPDB objects (temporary tables with prefix #)
- Statement is executed from database object (procedure/function/trigger) and sql engine may reports an error during applying such plan guide script. In case of any error please use own hints or apply hints within specified object directly

Database: SPE

Plan guide name: DBPLUS_0xC75628C50E1CD41A

Plan guide HINTS: USE PLAN hint for selected plan hash

View script Download script Execute script Cancel

3 Minor fixes and improvements

3.1. Improved Change Plan alert mechanism

In the latest version, we added support for the case in which an alert was generated related to a change in the execution plan. In some cases, there was a change of execution plan in which the SQL engine gave a new Plan Hash identifier but the plan itself was identical to the one previously executed.

In this case, in addition to comparing plan statistics, the plan itself is also compared. In the case where the functions in the query plan are the same and only the plan identifier has changed, the information about such an event will not trigger an execution plan change alert.

3.2. Improved grouping of instances on the Dashboard screen

At the request of some of our customers, we have added the ability to filter database instances which have several categories assigned. For this purpose, we have added a checkbox **[Common]** after selecting which only those instances will be displayed that meet the condition of assigning categories selected in the field **Category** filter.

Categories can be assigned in the **Configuration - Servers** menu, by selecting a category in the details for the instance.

Dashboard monitor

SUMMARY FOR ALL INSTANCES

All Instances

165
All instances

● 138
● 1
● 2
● 24

76
Replicas

● 73
● 2
● 1
● 0

Sql Server Instances

90
All instances

● 85
● 1
● 2
● 2

76
Replicas

● 73
● 2
● 1
● 0

Oracle Databases

61
All instances

● 47
● 0
● 0
● 14

PostgreSql Instances

14
All instances

● 6
● 0
● 0
● 8

Search instance or Host Name: _____ Category filter: OTHER, PRODUCTION Common

Status	Name	Host Name	Version	Startup time	Category	Repl. status	CPU Host	CPU Instance [%]	Waits [s/1s]	Waits I/O [s/1s]
●	ENOVA-SQL01 ENOVA	ENOVA-SQL01	2022 (16.0.4095.4)	2023-12-18 15:4...	PRODUCTION,OTHER		2 %	0 %	0	0