

DBPLUS
Performance Monitor for Oracle
description of changes in version 2022.1

Date: April 10, 2022

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Below is a list of changes to the DBPLUS Performance Monitor system for Oracle database monitoring.

New in 2022.1

1 Anomaly Monitor

The latest version introduces a number of changes to the functionality of detecting performance problems.

New detection for log file reading / writing problem

Detection related to problems with saving data to the log file has been added in the latest version. The application checks the leading waits in the monitored database related to writing data to the log file, such as:

- db file parallel write,
- log file sync,
- log buffer space,
- log file parallel write ,
- log file parallel write,
- control file parallel write,
- control file single write.

When an increase in the statistics for a given wait is detected, the "change write time" perf statistics are checked and compared with the statistics of the write/read data from the disk array. If an increase in duration is detected for each of the above-described areas, an anomaly related to the time of reading/writing data to the log file is reported.

All detections that were detected by the Anomaly monitor module in a given period can be exported in * .docx format using the report available on the Anomaly Monitor menu.

Fixed problem with excluding queries from monitoring

The DBPLUS Performance Monitor application has a module that detects performance problems, the so-called Anomaly Monitor. The module detects, among others performance problems with queries run in the monitored database. The trend of basic statistics of a given query is examined and the execution plan with which a given query is performed is verified.

In some cases, a change in the trend in the operation of a given query is made consciously by the administrator, in which case we have the option of excluding the query from monitoring so that it does not generate unnecessary alerts. The functionality of excluding queries from monitoring has been improved in the latest version.

Improved detection calculation for queries that run at fixed times

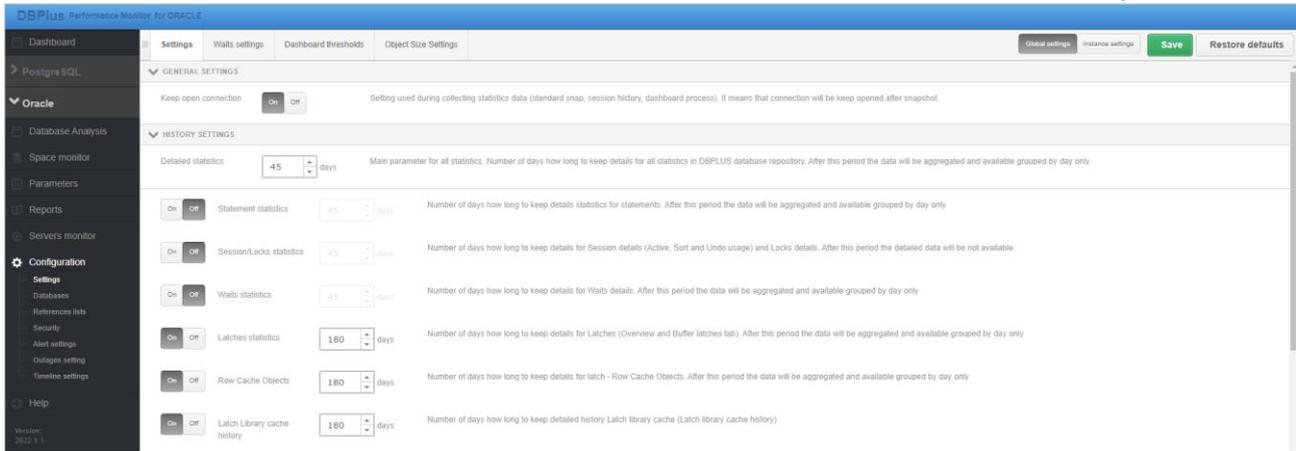
In the latest version of the algorithm that verifies the occurrence of performance anomalies in the database, we have improved the mechanism that checks whether a given performance problem does not result from a repetitive, constant process that is run periodically on the monitored database. If a disturbance resulting from a cyclical process launched at fixed hours is detected, such an alert will not be generated.

2 Data management in the DBPLUS repository database

In the DBPLUS application, all data related to the monitoring of the instance are saved in one place in the repository database. Detailed data (e.g. query statistics collected at 15-minute intervals) are aggregated into daily data after a certain period of time. Until now, the user had only one main parameter that controlled the retention time of data in the repository.

In the latest version of the application, we have added parameters that enable individual configuration of the data retention time in the DBPLUS **repository** for the most important monitoring areas.

The configuration change is available in the settings menu from the main menu: **Configuration> Settings**. The parameters responsible for setting the time length can be found in the dedicated **HISTORY SETTINGS** section in the **Settings** tab.



The section includes the configuration for the main **Detailed Statistics** parameter, as well as the parameters of the main monitoring areas. Setting the configuration for any of the parameters overwrites the settings of the main parameter. Please note that the change applies to all monitored instances.

Parameters are available for the areas:

- Statements statistics - concerns the Sql Details area,
- Session \ Locks statistics - concerns the area of locks and sessions history,
- Waits statistics - concerns the wait area
- Latches statistics - applies to Latch statistics available on Latches: Overview and Buffer latches screens,
- Row Cache Objects - stats for Latch Row Cache Objects,
- Latch Library cache history - refers to information about Latch,
- Perf Counters statistics - performance statistics available in the Perf Counters tab,
- PGA memory Details - the parameter is responsible for storing detailed data on the use of PGA by the session. Data collection is dependent on the Monitor session that utilize PGA parameter available in the setup menu under OTHER SETTINGS.
- Objects Space Size - a parameter responsible for the time of keeping information on the size of objects in the monitored database. Object occupancy monitoring is an additional module that we turn on in the settings menu in the Object Size Settings tab.
- IO Stats - the parameter is responsible for the storage time of IO Stats data in the DBPLUS repository,
- Backups - applies to the backup area.

Each change of parameters introduces changes from the next snap for the thread deleting the stories from the repository database. Information on data deletion can be followed in the logs available from the main menu **Servers monitor > Logs in the Deletion procedure runtime** tab.

3 Reports

In the DBPLUS Performance Monitor application, we have the ability to report the performance of the monitored instance. In the latest version of the application, we have added to the report information about the creation of an Outline objects in the reporting period. If an Outline has been created for a given query, such information will be included in the report. This information will be available in the Performance Monitor and Anomaly Monitor report.

During the report Anomaly monitor generation process, the user can configure how many newly created Outline objects in the period for which the report is generated are to be included in the report.

Additionally, a parameter has been added thanks to which only significant problems affecting performance will be included in the report. The default configuration assumes that a given problem must account for over 10% of the impact in relation to other problems detected by DBPLUS Anomaly Monitor.

REPORT DEFINITION Generate report Cancel

SELECT TEMPLATE:
DBPLUS - main report

Name:
DBPLUS - main report

Save as new

+ Create new template

Report settings:
General Settings

Main Performance Problems

Select and configure charts:

- Databaseload
- Top Waits
- Load Trends
- I/O Stats
- OS Stats
- Space Size

PERFORMANCE PROBLEM CLASSES INCLUDED IN THE REPORT

User I/O

ADDITIONAL SETTINGS

Max number of queries related to specific problem class: 5

Include problem with impact above [%]: 10

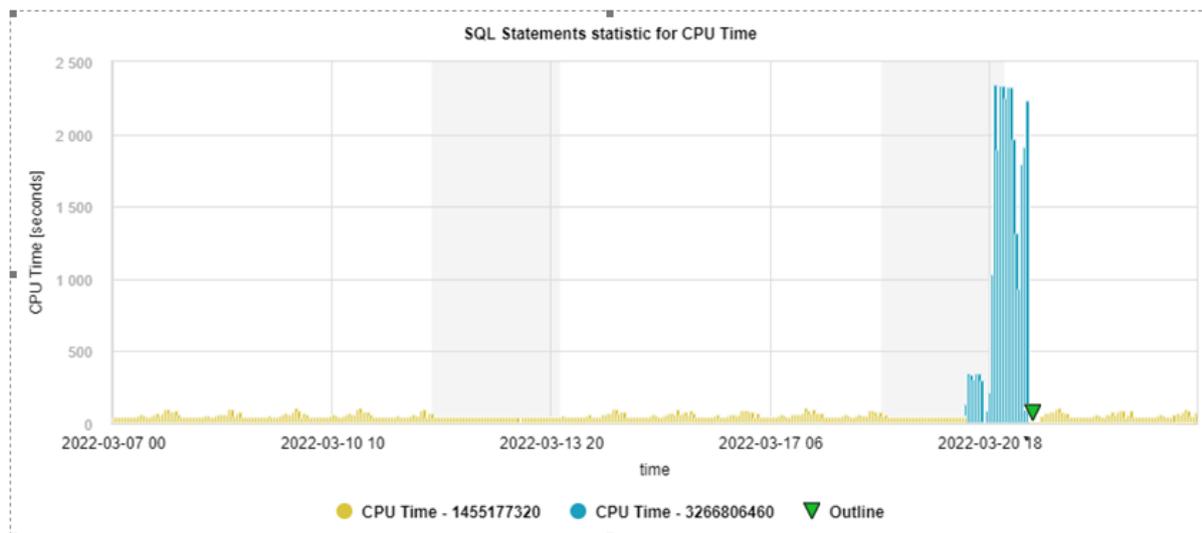
Maximum number of plan guide recommendation to include: 10

Add explain plan information to hash value

Below is an example of information, along with a space on the chart informing about adding an Outline for a given query.

The query was optimized via Outline with name **N_1568485117** on **21.03.2022 09:13:16**.

Average elapsed time for a day is 4105,93s in the reported period. Average elapsed time per 1 execution is 0,00056s in the reported period. The charts represents CPU time grouped by hour in the period between 07.03.2022 and 23.03.2022.



Statement text:

```
DELETE FROM STA_ZMI_BUF$ WHERE FIR_KOD=:B2 AND TOW_KOD=:B1
```

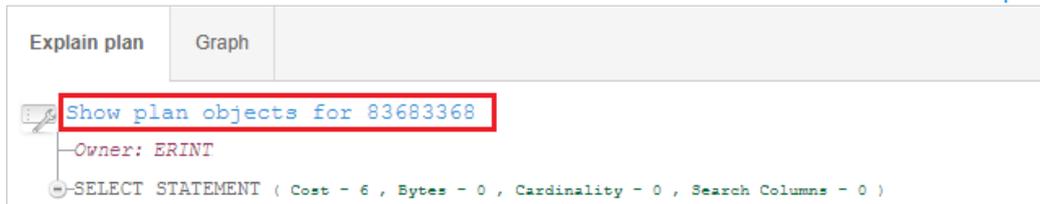
Improvement in Anomaly Report

In the latest version, changes have been made to the Anomaly Monitor report related to:

- Improvement of the currently occurring data presentation errors in the report,
- acceleration of the report generation process,
- improvement of the translation for the Polish version.

4 DBPLUS Query Advisor

A new version of the DBPLUS Query Advisor mechanism has been added to the latest version of the application. The functionality is available on the Plan Objects screen, which can be accessed from the query plan level.



The Query advisor functionality is available only after performing manual query parsing using the [Parse SQL Query] button available on the Plan Objects page.

The screenshot displays a complex interface with four main sections:

- SQL TEXT (HASH VALUE: 2124368238):** Contains a SQL query:


```
SELECT
COUNT(*)
FROM "ERINT"."DOK_MA" "A2",
"ERINT"."P_DOK_MA" "A1"
WHERE "A2"."DATUM" >= TO_DATE(:SYS_B_0, :SYS_B_1)
AND "A2"."DATUM" < TO_DATE(:SYS_B_2, :SYS_B_3)
AND "A1"."DOK_MA_ID" = "A2"."ID"
```
- Objects Explorer:** Shows a tree view with 'Parse SQL Query' checked and highlighted in red.
- EXPLAIN PLAN (PLAN HASH: 1636374425):** Shows a hierarchical execution plan:


```
-Owner: ERINT
-SELECT STATEMENT ( Cost = 16 , Bytes = 0 , Cardinality = 1 )
  -SORT (AGGREGATE)
    -FILTER
      -NESTED LOOPS ( Cost = 16 , Bytes = 1 )
        -INDEX (RANGE SCAN) DOK_MA
        -INDEX (RANGE SCAN) P_DOK_MA
```
- OBJECTS USED IN EXPLAIN PLAN:** A table listing objects used in the plan:

Type	Owner	Object Name	Owner
INDEX	ERINT	DOK_MA_DAT_W	ERINT
INDEX	ERINT	P_DOK_MA_PK	ERINT
TABLE	ERINT	DOK_MA	ERINT
TABLE	ERINT	P_DOK_MA	ERINT

In the latest version, we have improved the search mechanism for the most optimal ways to read data for a given query and cost assessment for a given search path.

The algorithm in each new version of the application is improved and supplemented with new queries. For some queries, a message may be displayed stating that there is no recommendation and that the query is not supported in the current version.

5 Bug fixes and improvements

5.1. Fixes related to the operation of the SQL Parser functionality

In the latest version, we have introduced a number of fixes related to the query parsing mechanism available on the Show Plan Objects screen. The changes include improvements to the ergonomics of operation and improvement of the parser operation in the areas of:

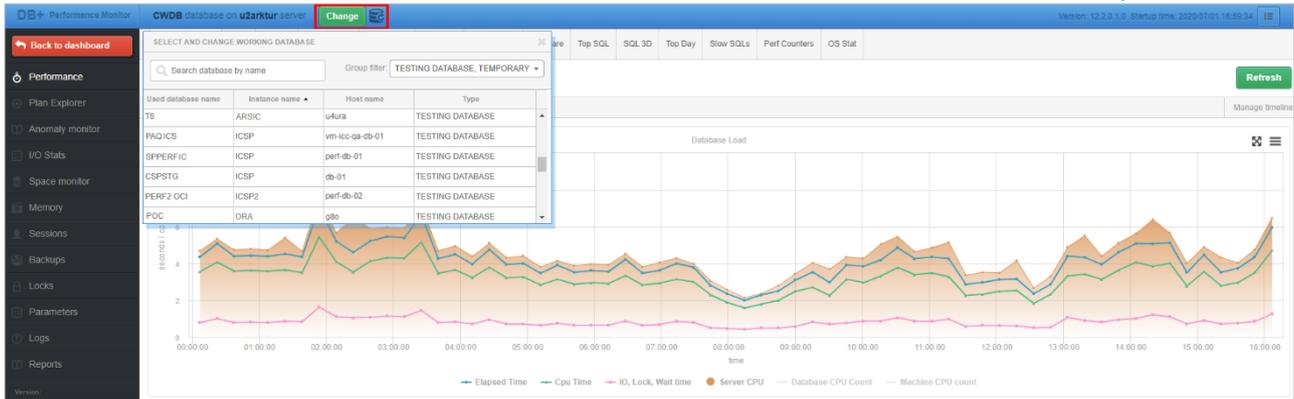
- Support for new types of queries
- Parser support for non-existent objects

5.2. Shared Dashboard with the Performance Monitor application for SAP Hana

In the latest version of the application, support for the new SAP Hana data platform has been added. Users with multi-platform monitoring can view online all four available platforms on one common Dashboard screen.

5.3. Database instance change

In the latest version of the application, we have improved the functionality of changing the monitored database instance. In the application, while viewing performance statistics, we have the option of changing the database context. It is possible to change it without having to go back to the Dashboard screen. In order to change the context, it is enough to click on the [Change] button available on the blue bar at the top of the screen. After clicking, the list of available monitored databases will be expanded with the possibility of searching by the selected filter or name.



5.4. Fixed the problem with presenting detailed data on the lock screen

The problem with the presentation of lock session details on the Locks History page has been corrected. The problem was intermittent and related to a redundant character written to the repository, causing problems with displaying the data. The amendment only concerned the visual part, all data will be available retrospectively.