DBPLUS
better performance

DBPLUS
Performance Monitor for PostgreSQL
description of changes in version 2021.2

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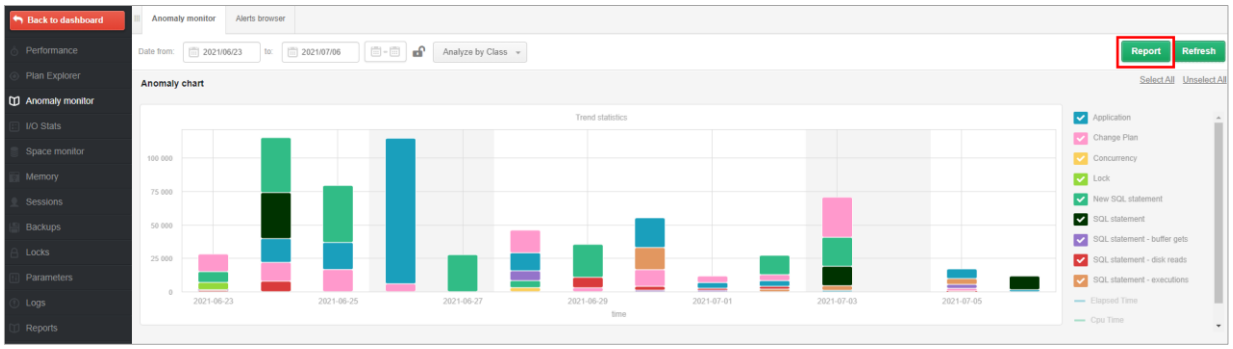
Below we present a list of changes in the DBPLUS Performance Monitor system for monitoring PostgreSQL instances.

New in 2021.2

1.1. Generate a report based on Anomaly Monitor

As part of the Anomaly Monitor module, where information about problems detected in the monitored database is presented, a reporting module is available. The reporting module is available under the **Report** button. The report is generated in * .docx format.



A report from a given period can be generated by the User using a saved template (TEMPLATE), which has been predefined in DBPLUS, or by configuring your own report.
Each User can add their own templates or edit existing ones added by other users. Predefined DBPLUS templates cannot be modified.
In the further part of the configuration, User can set the language in which the report will be generated, the date range for which the reports will be generated, the name of the report and the file name.
The report is divided into chapters that contain specific types of graphs. The chapters correspond to the charts available from the DBPLUS application. If User select the entire chapter with a checkbox, it will not be taken into account automatically when the report is generated.

InstanceLoad
It allows to generate a graph of the performance of a SQL instance over a given period of time.

TopWaits
It allows to generate a chart in two variants:

- Top Waits
- Selected Waits

In the case of the Top Waits option, the chart will show the top expectations that are present in the database at a given time. As part of the configuration, the User may indicate the number of waits to be included in the chart and select the option that displays the summaries of the data visible on the chart.
The Selected Waits option allows to generate a chart for waits specified by the user.

Loadtrends
The charts in this chapter provide a long-term presentation of the main performance statistics. Thanks to LoadTrends, it is possible to estimate whether the recent performance changes in the database are bringing the expected effect.

Space Size
It allows to generate a graph of the size of a monitored SQL instance. The application also allows to generate a graph that shows the size of the database specified by the User. Selecting the additional Show summary option will generate a summary for a given chart in a tabular form.

Main Performance Problem

This chapter was also available in previous versions of the application. Currently, it is possible to configure the visibility of query plans in the report for query problems.

Update of problem classes

In the DBPLUS performance Monitor application, the Anomaly Monitor menu presents information on the problems detected in the monitored database. Problems are grouped into classes which, in case of problems with increasing a given Wait level, will have names that match the class of the given Wait. If the problem is not related to the wait, the class name has been predefined by DBPLUS analysts so far.

Improved Change Plan alerts

One of the most common problems with database query performance is changing the execution plan. In the Anomaly Monitor module, the application indicates when a plan change causes a performance problem. In the latest version, we have tightened the indication of performance problems related to the plan change in the case when the plan change occurs several times during a single snap. As part of the improvement, a special algorithm has been added to check whether the plans on which the query works allow to raise an alert and report anomalies.

Important !! The report cannot be run on IE (Internet Explorer).

1.2. Improve the process of generating query plans

In the DBPLUS Performance Monitor application for PostgreSQL database monitoring, a mechanism for generating query explain plans for top queries performed in the snap on the PostgreSQL instance has been implemented. For the Top Query application generates the Explain command and saves the execution plan for the query. Thanks to the query parsing mechanism introduced in this release, it was also possible to improve the process of generating the execution plan. The main problem in generating the plan is substituting correct values for the parameters with which a given query is executed. Thanks to the query parser mechanism, before the execution of the Explain command, the query is parsed and then appropriate values consistent with the type for a given parameter are substituted.
Thanks to this change, the number of queries where the Explain operation failed should be significantly reduced and the user will receive more precise information about the plan with which the query is performed.

1.3. Query formatting and parsing

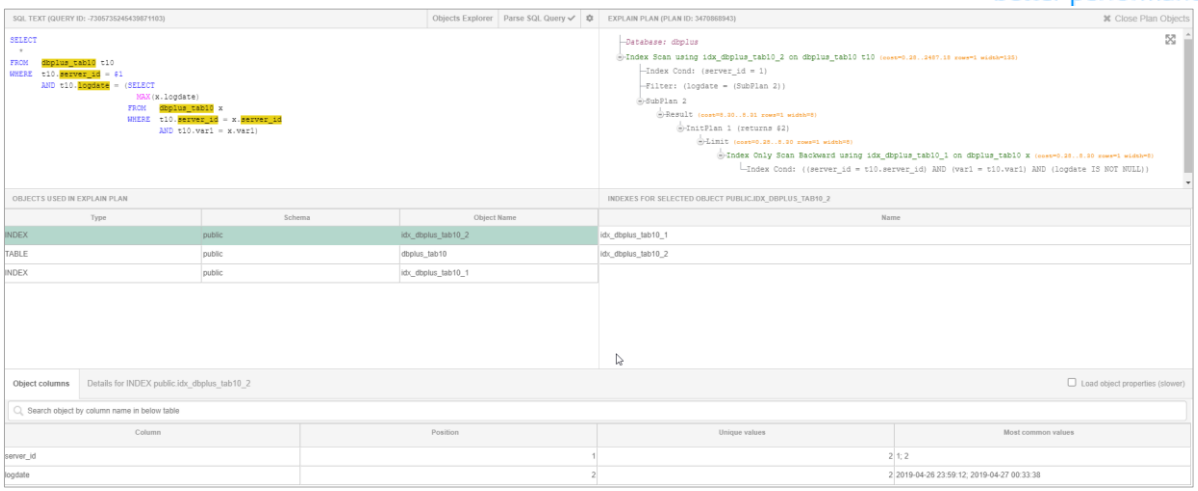
In order to speed up the query analysis, the query parsing mechanism has been used in the DBPLUS application. This function is based on the analysis of components of query objects (tables, indexes). Thanks to the query parsing mechanism, it is possible to quickly verify which tables and columns are used in the analyzed query. The parsing mechanism is available after clicking on the Show Plan Objects for link visible in the query plan. To run the parsing, click on the Parser SQL Query option (see the example below). After correct parsing, we get the ability to highlight tables and columns for selected objects.
The new feature is available in two modes:

- manual,
- automatic.

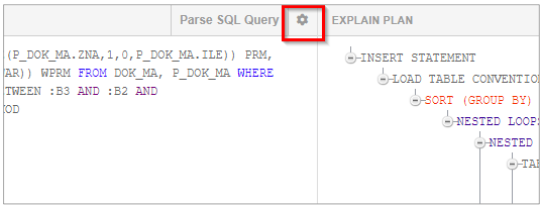
In manual mode, after enter Show Plan Objects , press the [Parse SQL Query] button, the query is formatted and parsed. Formatting the query changes the presentation in the SQL TEXT window to a form that facilitates query analysis.
The parsing function in the current version allows to highlight the columns that belong to the object that participates in the query.
Depending on the selected object, objects are marked in different colors:

- Table (green),
- Indexes (yellow).

The highlighting is performed in both the SQL TEXT and EXPLAIN_PLAN fields.

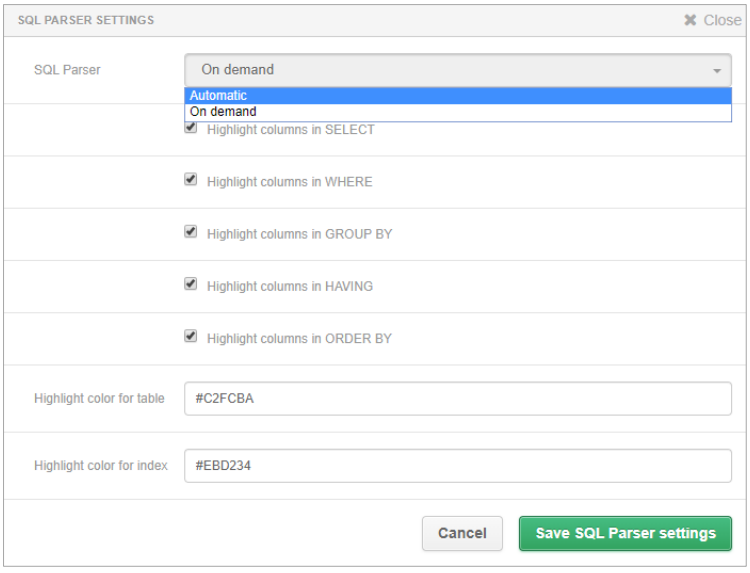


As part of the mechanism, it is possible to select the range of highlighted objects in the query. In order to change the configuration, click the "cog" button on the Show plan Objects page.



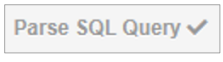
As a result of clicking, a window will open where the User can choose:

- SQL Parser – On demand/Automatic – parsing mode.
- Depending on the mode, when entering the Show Plan Objects screen, the query will be automatically formatted and parsed (Automatic mode).
- Highlight columns - depending on the selection, the columns in the query will be highlighted
- Highlight color – color selection for table / index highlight.

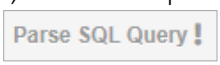


Each time the query is parsed, the User will receive information about the status of the performed operation. In the first version of the parser engine, not all query types were handled. In each subsequent release, support for further inquiries will be added.

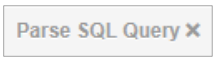
If everything went well, the button on the right will be presented as below:



If the query was formatted correctly, however, there was a problem with reading all objects from the query:



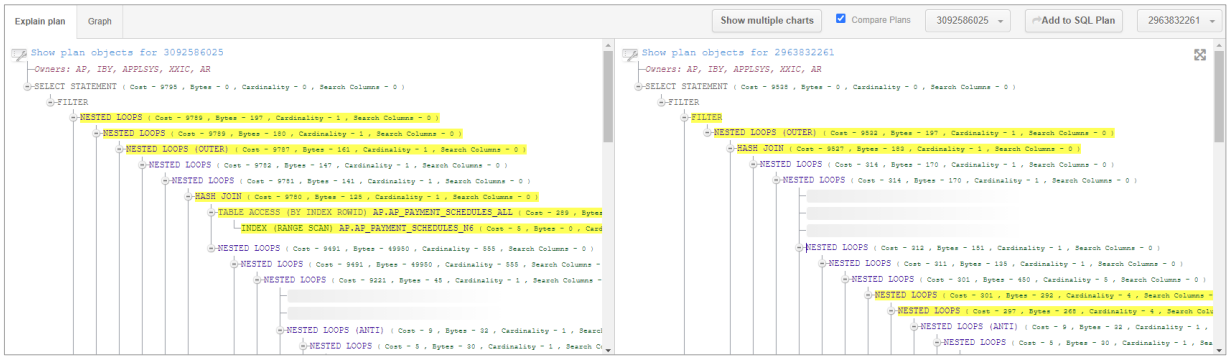
If the "X" character is displayed after parsing, it means that the query failed to format correctly and parsing was not performed properly. Support for such queries will be provided in future version updates:



1.4. General improvements

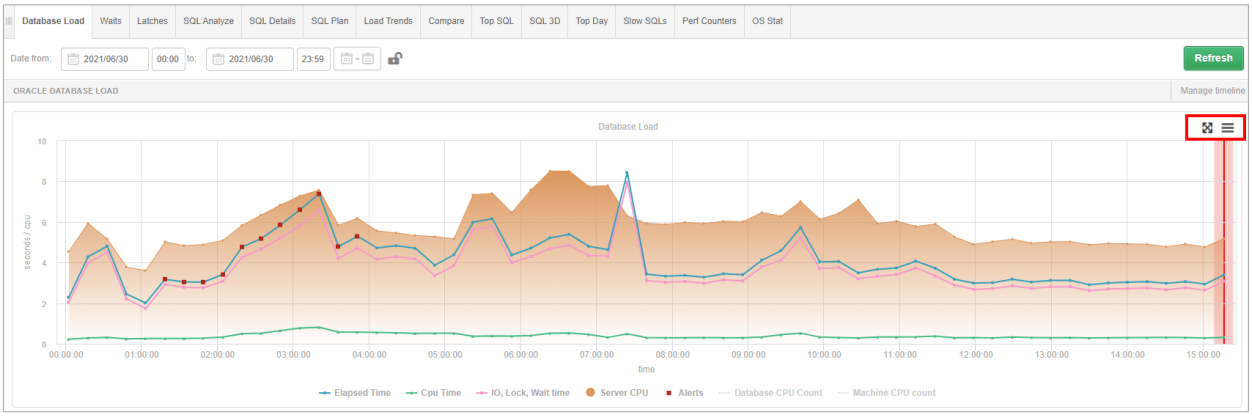
1.4.1. *Comparing Explain Plan*

In the latest version of the application, we improved the way of showing differences in plans. When the query uses many execution plans in the DBPLUS Performance Monitor application, in the SQL Details tab, it is possible to compile performance statistics for each plan. Additionally, through the Compare plans function, the user can compare the differences between individual execution plans.
In the application, the difference between the plans is marked in yellow. In the case when the performance plan consists of many lines, the comparison of both plans is difficult, therefore, in order to facilitate the comparison of statements, "artificial" lines are inserted in the plan in some places.

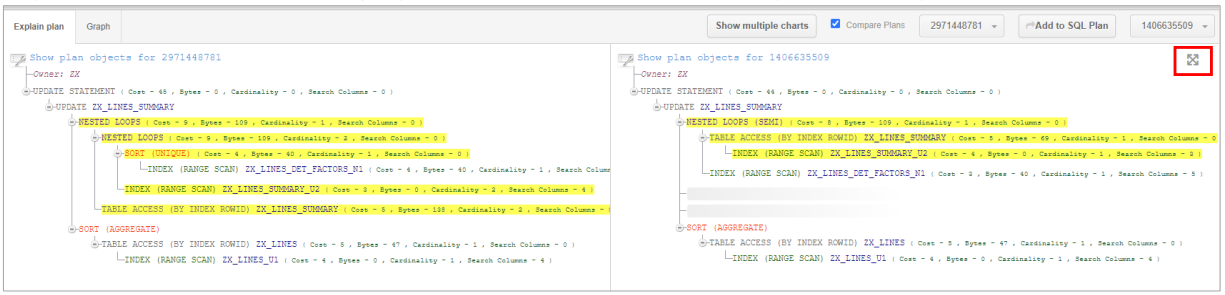


1.4.2. *Full screen*

The application has added the option of presenting charts and execution plans on the whole screen. The function is available after click the "full screen" button visible in the upper right corner of the chart / execution plan.



The option is available for the single plan view as well as for the Compare Plans option.



After clicking on the "full screen" icon, the information contained in the inquiry plans will be displayed in full screen in a new browser window. This will greatly facilitate the possibility of analyzing query plans.