DBPLUS Performance Monitor description of changes in versions 2018.3.1, 2018.3.2

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Contents

Below is a list of changes to the Oracle 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 also been added.

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 can be configured for all or for dedicated databases. At any time you can delete a previously defined alert using the [Wrench] 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.

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, the reference values are set differently.
For Load Trends and I/O Stats alerts, thresholds are set based on historical (reference) values.

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 made 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).

The application also enables conditioning of the triggering of an alert from a general trend (for the entire database) 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 databases or dedicated definitions can be created for selected databases.

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

REASON & PROBLEMS CONFIGURATION   Add new definition

Type	Reason/Problem description		Enabled	Rule preview
Trends	Performance problem for specified SQL Statements couse increase Executions and Disk Reads.		✓	Trends:Elapsed Time AND ((SQLQuery:Elapsed Time AND SQLQuery:Elapsed Time per 1 exec AND SQLQuery:Execution AND SQLQuery:Disk reads) OR (SQLQuery:Elapsed Time AND SQLQuery:Execution AND SQLQuery:D
Trends	Performance problem for specified SQL Statements couse Disk reads increase		✓	Trends:Elapsed Time AND ((SQLQuery:Elapsed Time AND SQLQuery:Elapsed Time per 1 exec AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution) OR (SQLQuery:Elapsed Time AND SQLQuery:Disk reads AND NOT:S
Trends	Performance problem for specified SQL Statements		✓	Trends:Elapsed Time AND ((SQLQuery:Elapsed Time AND SQLQuery:Elapsed Time per 1 exec) OR SQLQuery:Elapsed Time) AND NOT:SQLQuery:Disk reads AND NOT:SQLQuery:Execution
Trends	Performance problem for specified SQL Statements couse increase by slow I/O response		✓	Trends:Elapsed Time AND (IO:Single Block Write time OR IO:Write time) AND NOT:IO:Disk writes AND (Trends:Wait Event Time - [log file sync] OR Trends:Wait Event Time - [db file parallel write] OR Trends:Wait Event Time - [bu
Trends	Problem - wait: log file parallel write		✓	Trends:Wait Event Time - [log file parallel write] AND (IO:Block writes OR IO:Disk writes)
Trends	Data reads time problem caused by slow I/O response		✓	Trends:Elapsed Time AND (IO:Single Block Read time AND IO:Read time) AND NOT:IO:Disk reads AND NOT:SQLQuery:Disk reads
Trends	Performance problem for specified SQL Statements couse increase Executions		✓	Trends:Elapsed Time AND ((SQLQuery:Elapsed Time AND SQLQuery:Elapsed Time per 1 exec AND SQLQuery:Execution AND NOT:SQLQuery:Disk reads) OR (SQLQuery:Elapsed Time AND SQLQuery:Execution AND NOT:S
Trends	Performance problem for specified SQL statements couse new query		✓	(Trends:Elapsed Time AND SQLQuery:New Statement Elapsed Time) OR (Trends:Cpu Time AND SQLQuery:New Statement Cpu Time)
Trends	Database performance degradation		✓	(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:Ela
Trends	Increase of query processing time caused by slow I/O response		✓	Trends:Elapsed Time AND (IO:Single Block Read time OR IO:Single Block Write time)
Trends	Increase of query processing time caused by locks		✓	Trends:Elapsed Time AND Trends:Lock 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 A DATABASE   T5 testowa ▾   Add new definition   Restore defaults

Type	Reason/Problem description		Enabled	Override	Rule preview
Trends	Performance problem for specified SQL Statements couse increase Executions and Disk Reads.		✓	☐	Trends:Elapsed Time AND ((SQLQuery:Elapsed Time AND SQLQuery:Elapsed Time per 1 exec AND SQLQuery:Execution AND SQLQuery:Disk reads) OR (SQLQuery:Elapsed Time AND SQLQuery:Execution AND S
Trends	Performance problem for specified SQL Statements couse Disk reads increase		✓	☐	Trends:Elapsed Time AND ((SQLQuery:Elapsed Time AND SQLQuery:Elapsed Time per 1 exec AND SQLQuery:Disk reads AND NOT:SQLQuery:Execution) OR (SQLQuery:Elapsed Time AND SQLQuery:Disk reads A

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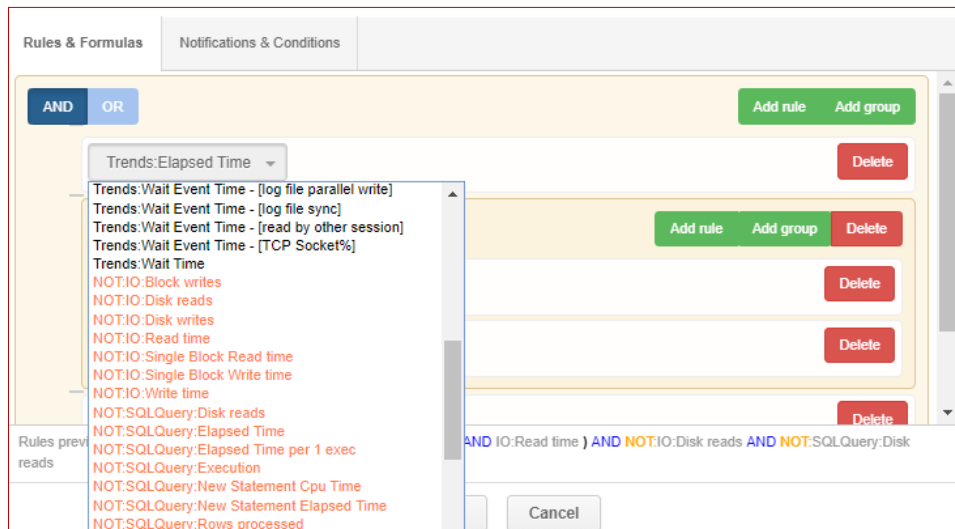
Once a rule is defined, selecting the right operators and completing all added alarms will display the rule below.

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.

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 (default setting). 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 with the name *log file sync*.

- SQL Query group, Wait Event Time alert

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

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.

1.2 *Added information on number of query versions - Database Analysis >Performance> SQL Details*

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.

Version count 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 for the sessions making the queries are different (e.g. different OPTIMIZER_MODE for the given sessions).

1.3 *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.

1.3.1 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 a query search after entering "select max" is shown as an example. The top table returns queries that exactly match the search text "**SELECT MAX** (SNAP_ID)...".
The bottom table shows queries found for "select%max"
"SELECT NVL(MAX(P.LP), 0) + 1 FROM P_R_SAM P…".

1.3.2 Improved result display for Plan Flip-Flop Statements

When searching for queries with plan flip-flop, if queries (Query Hash) with more than one query plan (Plan Hash) are found in the result, but the query has not been completed for one or both plans, then these columns remain empty:
- Elapsed Time Per 1 exec,
- Times faster,
- Elapsed Time Per 1 exec difference,
- Elapsed Time to reduce,
- CPU Time to reduce.
This results from a lack of data to be compared.

1.3.3 Improvements to query search for *Statement using objects*

When searching for queries using objects, the query text is displayed in the new version. Below, the display for queries using the *DBPLUS_SNAPS* object.

1.3.4 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. This issue has been fixed.

Increased size of the results window, the window has been enlarged by a further 10% in the new version.

1.4 *Rights in the DBPLUS Configuration Wizard console*

The new version fixes the IIS configuration process.

1.4.1 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.

1.5 *Change in functioning of monitoring control parameters*

Several changes improving the functioning or performance of the monitoring service have been implemented.

1.5.1 Change in parameter settings

The new version provides the ability to set more frequent calls to the monitored database. This setting can be modified in the Configuration>Settings menu. More frequent data downloads (currently set to 30 seconds) can only be set from a specific database (global settings applicable to all databases cannot be changed).
In the new version, the minimum value that these parameters can be changed to is 1 second.
Default values can always be restored using the [**Restore**] button.

### 1.5.2 Improved data download for Space Monitor

The new version fixes an issue with downloading data on database utilisation. The issue was related to an Oracle error related to the DBA_free_space view. In some cases, the error caused lengthy DBPLUS user sessions on monitored databases downloading database utilisation information.

Handling such cases has been added and the sessions are interrupted now.

1.6 *General improvements*

1.6.1 Fixed data display on charts in Reports > Load Trends

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.
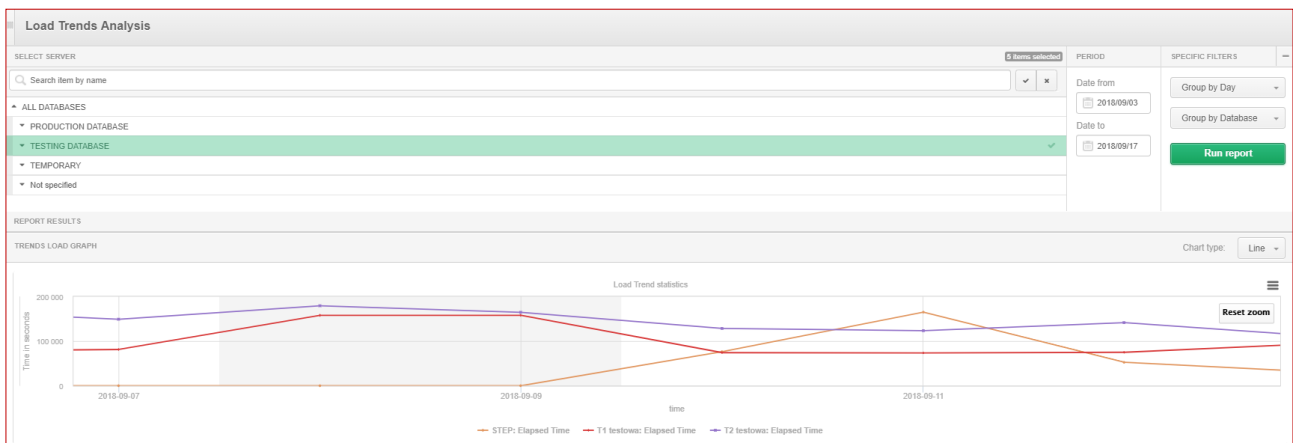

1.6.2 Improved query search - Database Analysis >Performance> Top Day

The new version fixes an issue with searching queries with limited numbers of returned queries. In the previous version, when a 'large' value was entered in the Show field, an error related to incorrect data format occurred. This issue has been fixed.
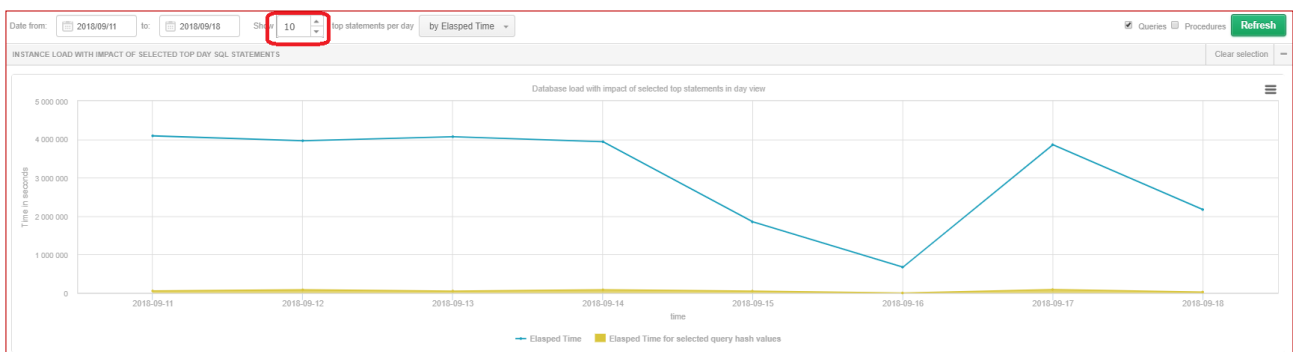
1.6.3 Improved chart display - Database Analysis> I/O Stats

In the new version, the chart generation feature has been improved. When an additional filter was selected for grouping using Datafile, the resulting chart was unreadable. This issue has been fixed.
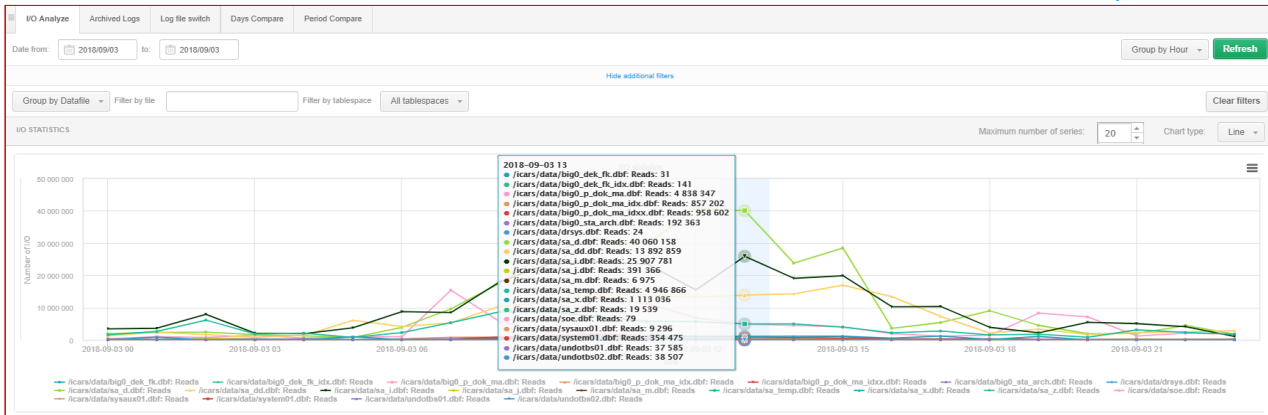
### 1.6.4 Corrected selection of points on charts

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 tabs:
- Instance Load,
- Waits,
- Latches.

1.6.5 Improved CPU utilisation display for charts - Database Analysis> Performance> SQL Analyze

The new version fixes an issue related with incorrectly displayed Elapsed Time Load/CPU Time Load values if the Database CPU Count option was selected. When the CPU count was selected, the count displayed 100% regardless of the queries selected. This issue has been fixed.
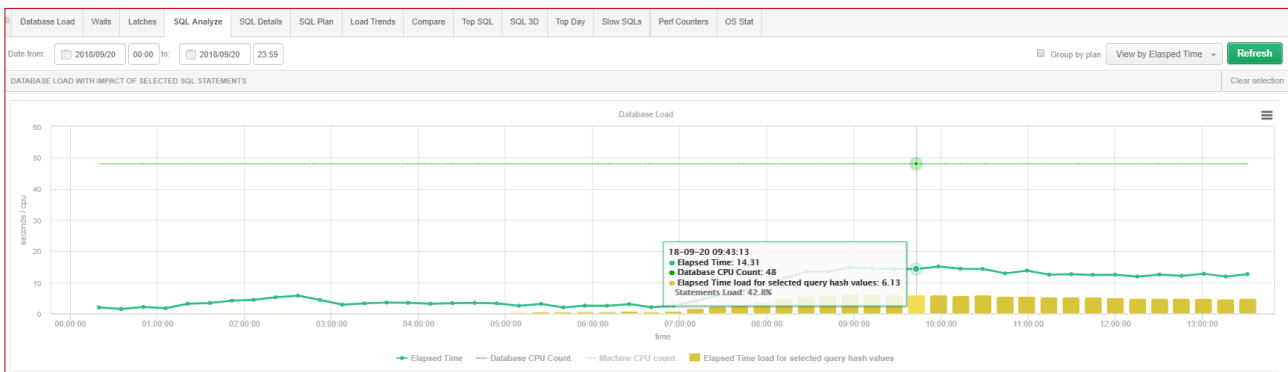
### 1.6.6 Fixed CPU utilisation calculation

Dashboard screen

The new version fixes CPU utilisation calculation for grid view. In previous versions, this view displayed the number of CPUs assigned to the SQL instance.
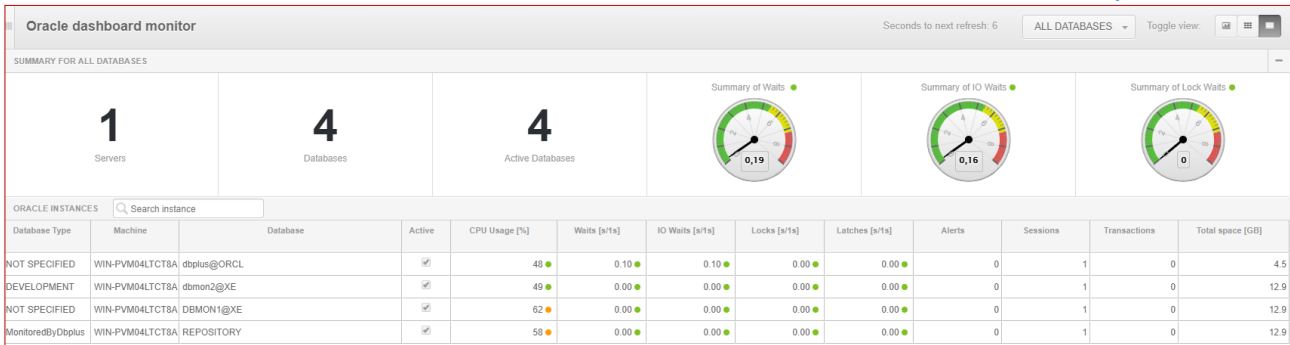
Database Analysis> Performance> Database Load

The new version fixes percentage database CPU load displayed under the chart in the DatabaseLoad. In the previous version, the load was incorrectly calculated in some cases.
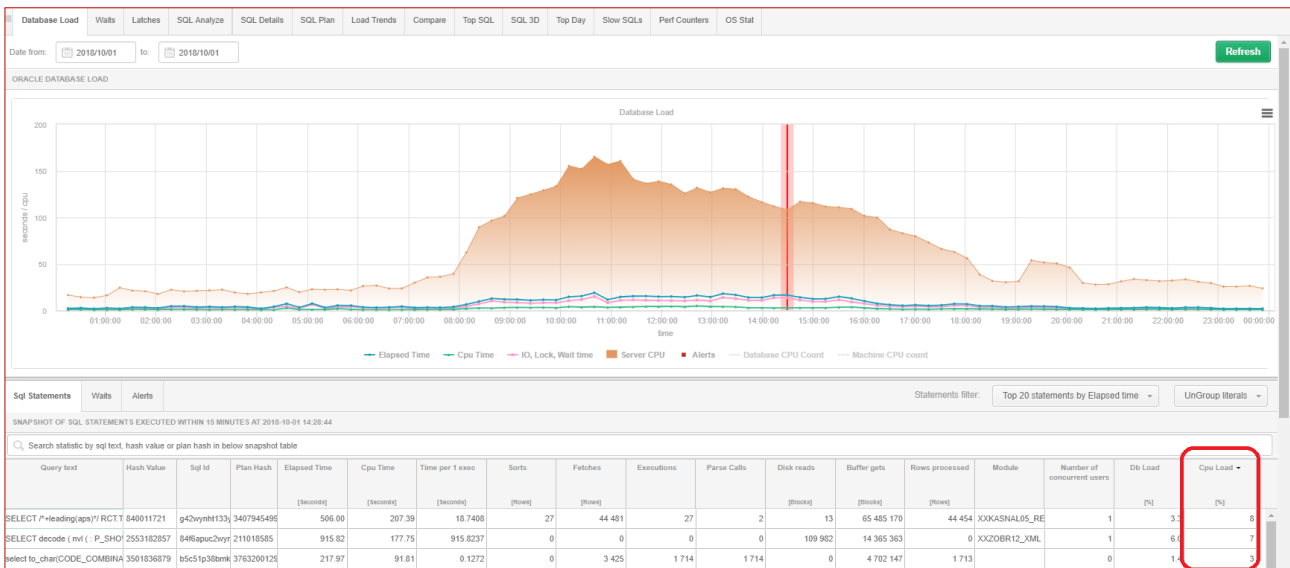

1.6.7 Tab merging - Performance> Waits

The new version merges the data displayed in the Analyze and Statistics sub-tabs of the Performance>Waits menu.

Following the change, the Analyze tab will display any wait type in the grid under the chart only once, regardless of the selected range (Day, Hour, Snap) - the previous version displayed each occurrence of waits of the given type in the selected time unit.

The way waits are displayed on the chart remains unchanged.
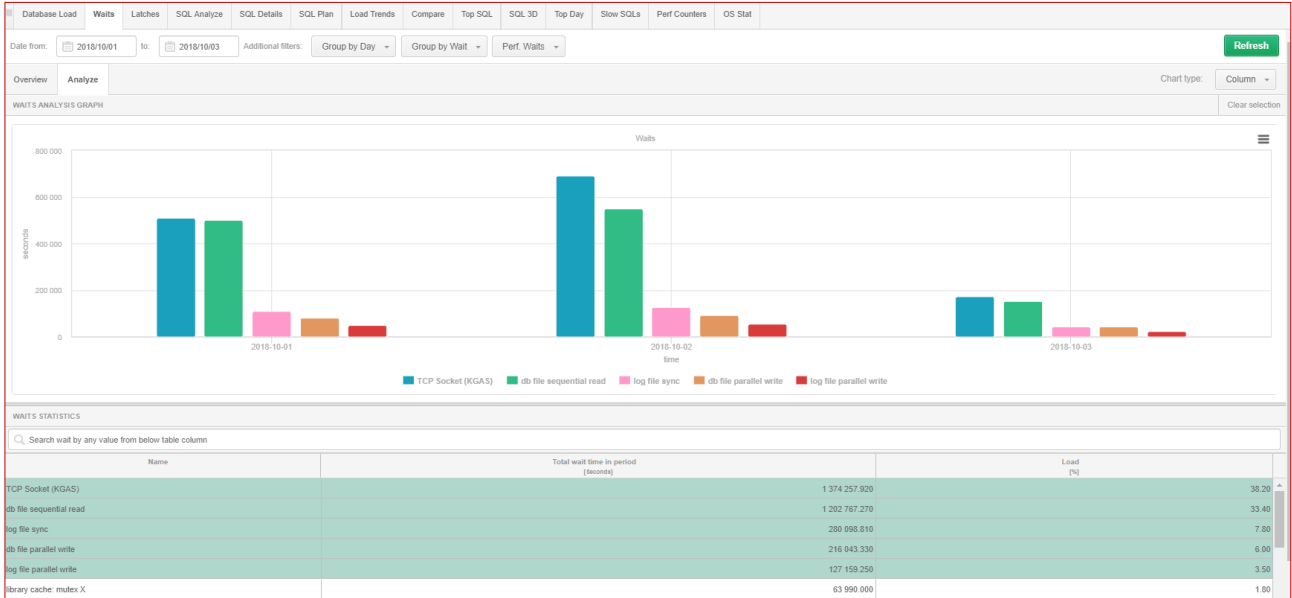
1.6.8 Fixed data display on charts - Database Analysis> Performance> OS Stat

The new version fixes an error related to MB units being incorrectly assigned on the chart to the Sys Time (CPUs) stat expressed in seconds. This caused charts for this stat to be drawn incorrectly. This issue has been fixed.