DBPLUS
Performance Monitor for Oracle
description of changes in version 2019.2

Date: 28th June 2019

Table of Contents

Below is a list of changes to the Oracle database monitoring application, DBPLUS Performance Monitor.

1   New in 2019.2 version

1.1   *Standby bases Monitoring*

In latest version of the application function about presenting Standbay databases' monitoring has been updated. Synchronous mode support has been added and way to check replication performance for Standby databases has been updated.

On the screen User get information about the configuration status of saving to Archivelog and the status of synchronization with the Standby database.

If there is no configuration (STATUS=VALID) User get the information:
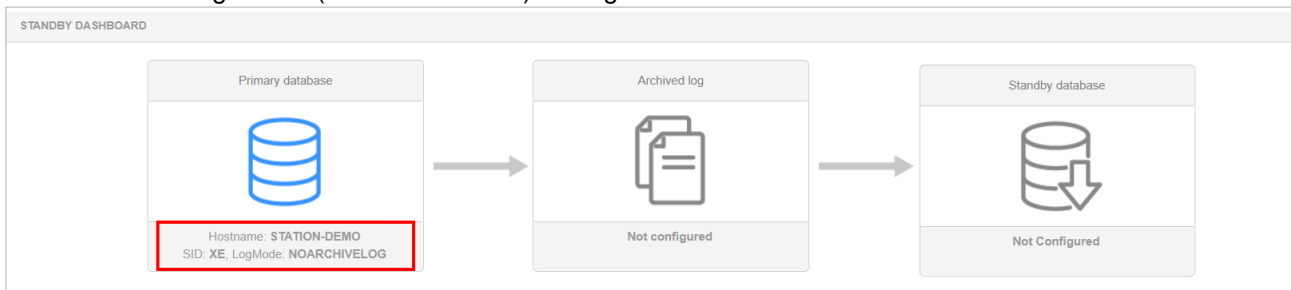
For asynchronous mode, there are information about:
- [Transmission Mode],
- [Protection mode],
- [Delay] in synchronization, calculated from the source database,
- [Files to apply] on the Standby side

View for asynchronous mode, for one configured Standby database:
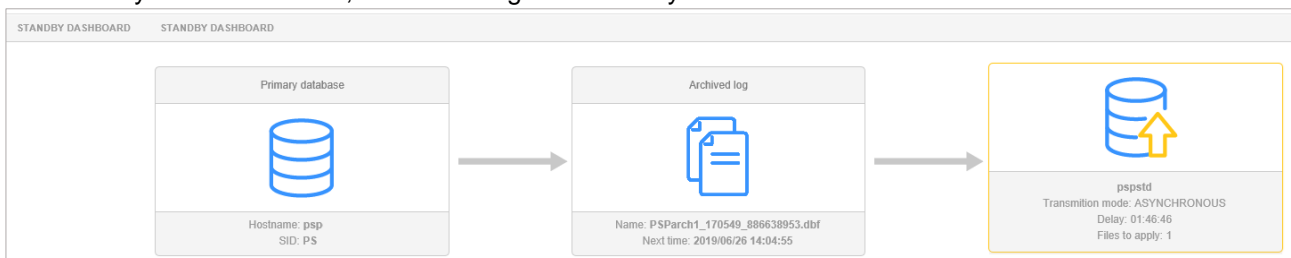
In synchronous mode, a new view has been added and it presents information about the source database and the Standby database. In this mode, there are information about:
- [Transmission Mode],
- [Protection mode],
- [Synchronized status/Synchronized],
- [Gap status].

View for synchronous mode:
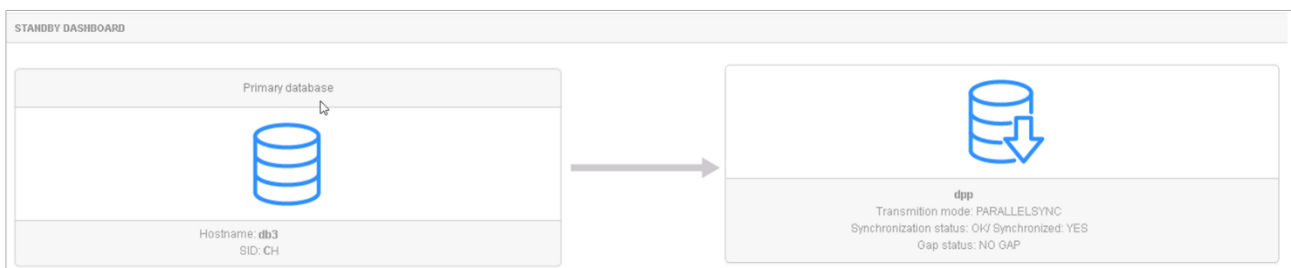
As in the previous version, by click the [Archive log] icon or one of the Standby databases, User get detailed information returned from the system view.

1.2 *New statistics available in Load Trends and Compare tab*

The latest version has been added new database statistics that can track the Load Trends. This information is in the Load Trends tab (details of databases). New statistics:
- IO Waits,
- Sessions using Undo,
- Record Count in Undo,
- Undo Space Used,
- Sessions using sort,
- Sort Space used.

This information makes it easier and faster to analyze the sources of potential performance problems.

IO Waits
This information applies to Waits that are related with the IO. The statistics can be presented by click on the IO Waits column. The high level of this Wait means that the increase in query execution time is related to IO resources. The rest of the analysis should be performed by checking which Wait from the IO class was in each period, using the Waits> Analyze tab.
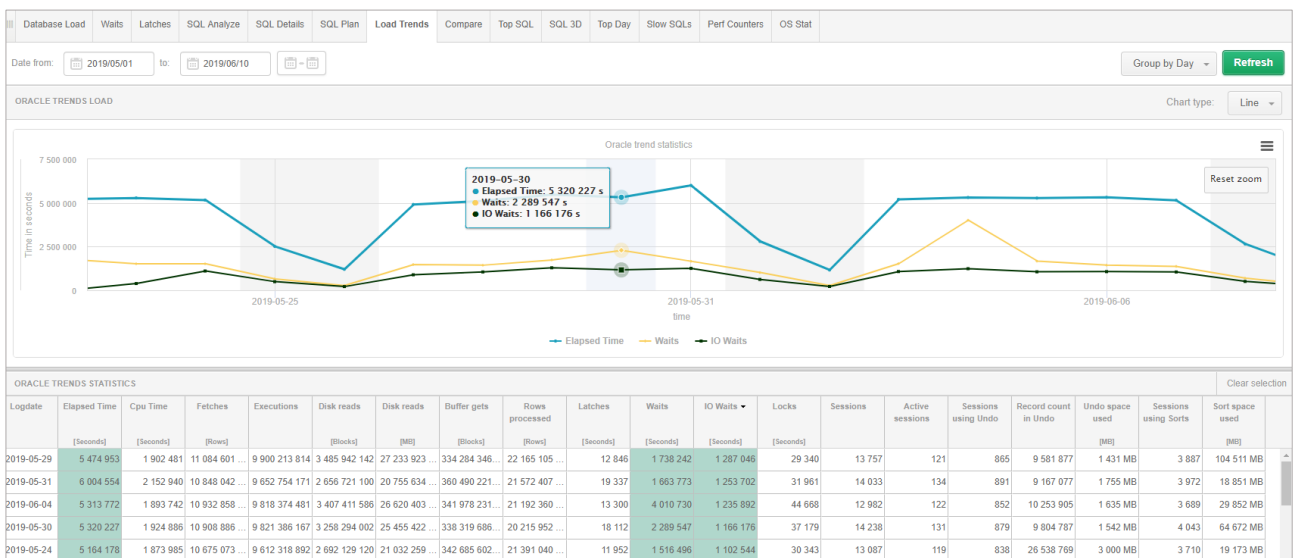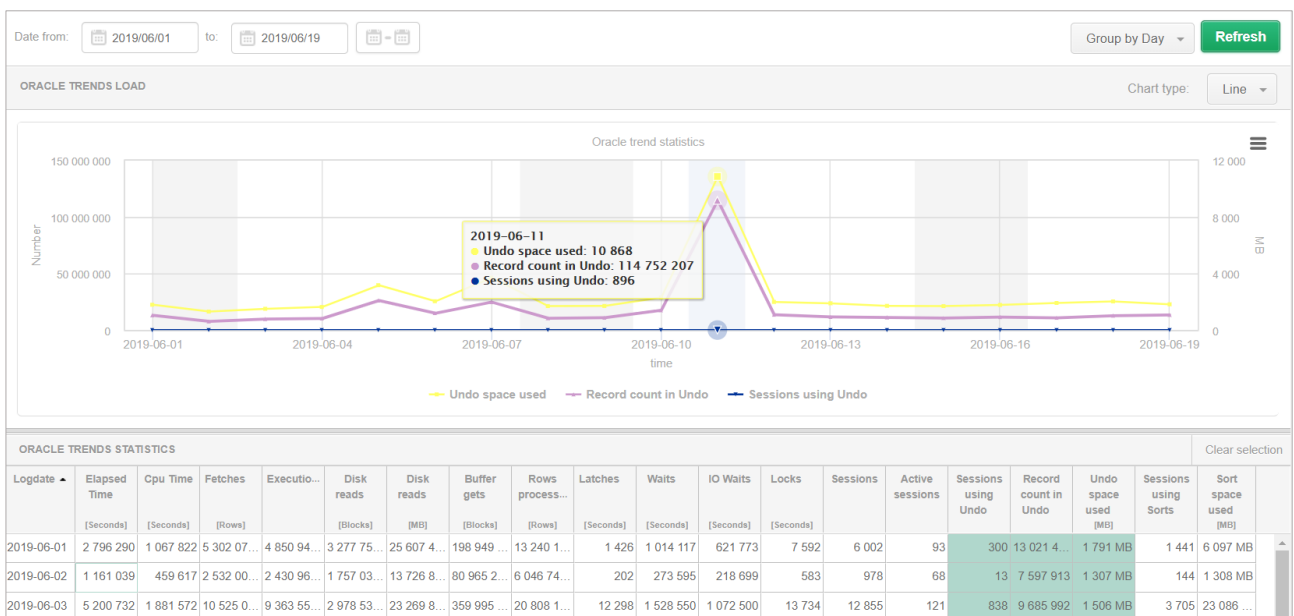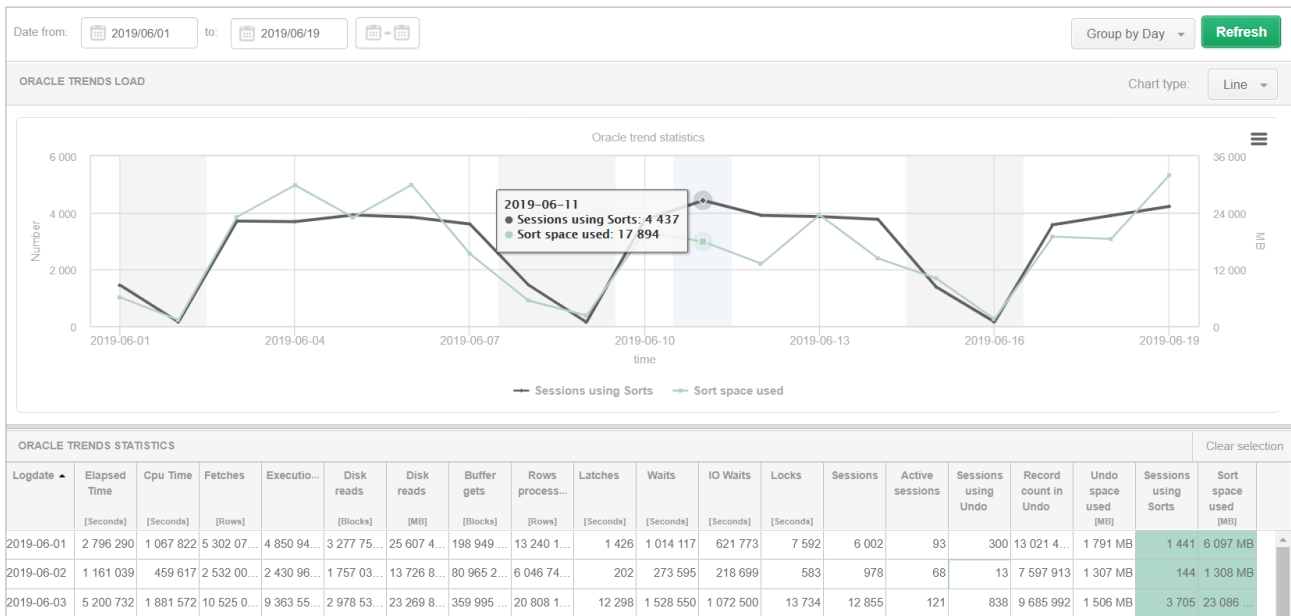

Logdate	Elapsed Time	Cpu Time	Fetches	Executions	Disk reads	Disk reads	Buffer gets	Rows processed	Latches	Waits	IO Waits ▾	Locks	Sessions	Active sessions	Sessions using Undo	Record count in Undo	Undo space used	Sessions using Sorts	Sort space used
	[Seconds]	[Seconds]	[Rows]		[Blocks]	[MB]	[Blocks]	[Rows]	[Seconds]	[Seconds]	[Seconds]	[Seconds]					[MB]		[MB]
2019-05-29	5 474 953	1 902 481	11 084 601 ...	9 900 213 814	3 485 942 142	27 233 923 ...	334 284 346...	22 165 105 ...	12 846	1 738 242	1 287 046	29 340	13 757	121	865	9 581 877	1 431 MB	3 887	104 511 MB
2019-05-31	6 004 554	2 152 940	10 848 042 ...	9 652 754 171	2 656 721 100	20 755 634 ...	360 490 221...	21 572 407 ...	19 337	1 663 773	1 253 702	31 961	14 033	134	891	9 167 077	1 755 MB	3 972	18 851 MB
2019-06-04	5 313 772	1 893 742	10 932 858 ...	9 818 374 481	3 407 411 586	26 620 403 ...	341 978 231...	21 192 360 ...	13 300	4 010 730	1 235 892	44 668	12 982	122	852	10 253 905	1 235 MB	3 689	29 852 MB
2019-05-30	5 320 227	1 924 886	10 908 886 ...	9 821 386 167	3 258 294 002	25 455 422 ...	338 319 686...	20 215 952 ...	18 112	2 289 547	1 166 176	37 179	14 238	131	879	9 804 787	1 542 MB	4 043	64 672 MB
2019-05-24	5 164 178	1 873 985	10 675 073 ...	9 612 318 892	2 692 129 120	21 032 259 ...	342 685 602...	21 391 040 ...	11 952	1 516 496	1 102 544	30 343	13 087	119	838	26 538 769	3 000 MB	3 710	19 173 MB

Sessions using Undo, Record Count in Undo, Undo Space Used
Statistics are about usage the Undo space in a database. It shows the number of sessions that use Undo space, the number of rows that currently are in the Undo and the space occupied by records at the time.

Logdate ▲	Elapsed Time	Cpu Time	Fetches	Executio...	Disk reads	Disk reads	Buffer gets	Rows process...	Latches	Waits	IO Waits	Locks	Sessions	Active sessions	Sessions using Undo	Record count in Undo	Undo space used	Sessions using Sorts	Sort space used
	[Seconds]	[Seconds]	[Rows]		[Blocks]	[MB]	[Blocks]	[Rows]	[Seconds]	[Seconds]	[Seconds]	[Seconds]					[MB]		[MB]
2019-06-01	2 796 290	1 067 822	5 302 07...	4 850 94...	3 277 75...	25 607 4...	198 949 ...	13 240 1...	1 426	1 014 117	621 773	7 592	6 002	93	300	13 021 4...	1 791 MB	1 441	6 097 MB
2019-06-02	1 161 039	459 617	2 532 00...	2 430 96...	1 757 03...	13 726 8...	80 965 2...	6 046 74...	202	273 595	218 699	583	978	68	13	7 597 913	1 307 MB	144	1 308 MB
2019-06-03	5 200 732	1 881 572	10 525 0...	9 363 55...	2 978 53...	23 269 8...	359 995 ...	20 808 1...	12 298	1 528 550	1 072 500	13 734	12 855	121	838	9 685 992	1 506 MB	3 705	23 086 ...

Sessions using sort, Sort Space used

Thanks to this statistic, User get the opportunity to view information about the use of temporary space. This makes it easier to track the Load Trends about the number of sessions in TEMP, as well as the occupation of TEMP space through these sessions.


Logdate ▲	Elapsed Time	Cpu Time	Fetches	Executio...	Disk reads	Disk reads	Buffer gets	Rows process...	Latches	Waits	IO Waits	Locks	Sessions	Active sessions	Sessions using Undo	Record count in Undo	Undo space used	Sessions using Sorts	Sort space used
	[Seconds]	[Seconds]	[Rows]		[Blocks]	[MB]	[Blocks]	[Rows]	[Seconds]	[Seconds]	[Seconds]	[Seconds]					[MB]		[MB]
2019-06-01	2 796 290	1 067 822	5 302 07...	4 850 94...	3 277 75...	25 607 4...	198 949 ...	13 240 1...	1 426	1 014 117	621 773	7 592	6 002	93	300	13 021 4...	1 791 MB	1 441	6 097 MB
2019-06-02	1 161 039	459 617	2 532 00...	2 430 96...	1 757 03...	13 726 8...	80 965 2...	6 046 74...	202	273 595	218 699	583	978	68	13	7 597 913	1 307 MB	144	1 308 MB
2019-06-03	5 200 732	1 881 572	10 525 0...	9 363 55...	2 978 53...	23 269 8...	359 995 ...	20 808 1...	12 298	1 528 550	1 072 500	13 734	12 855	121	838	9 685 992	1 506 MB	3 705	23 086 ...

Information about new statistics can also be compared (for individual days, periods), available in the Compare tab.

1.3   *Dictionary od non-performance Waits (not affecting performance)*

The ability to manage the Waits dictionary has been added. The dictionary is available in the Configurations> Settings> Waits settings tab. Configuration provides the ability to assign Wait to a group that does not affect performance and is not counted as performance Waits. This configuration is important to calculate the wait level for each snap in the Load Trends and Waits tab.

To change the dictionary, go to the Waits settings tab, where the entire configuration is visible. The screen is divided into two parts:

- The upper part presents a general dictionary of non-performance Waits. The dictionary can be updated (add / modify / delete). Modification here will cause that changes will be made for all databases available in monitoring.
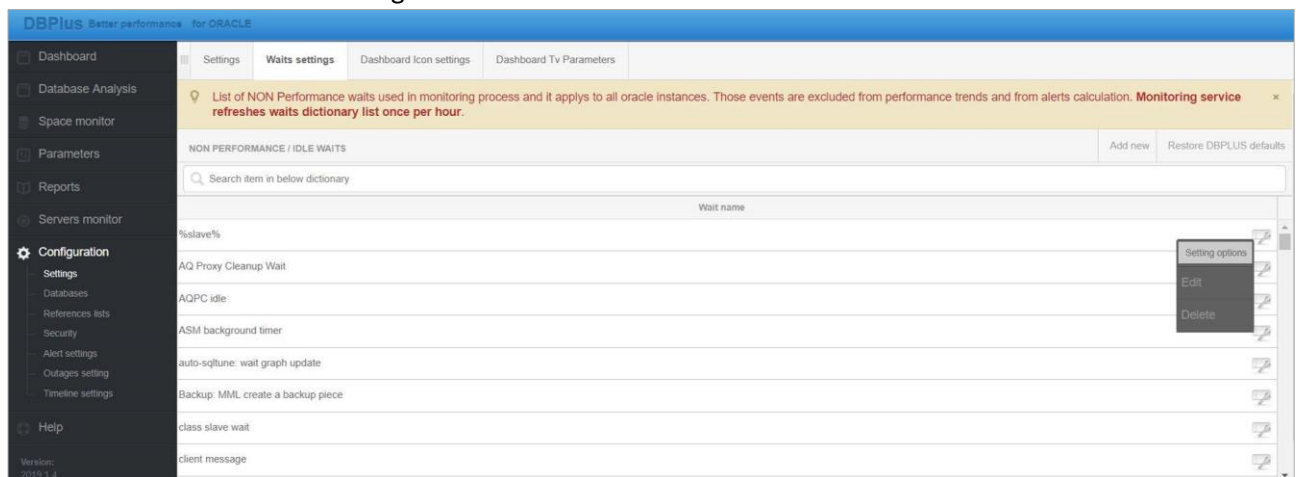
- The lower part contains the possibility of changes dedicated to a specific indicated database. In case of changes, select the base from the dropdown field [WAITS CONFIGURATION FOR SELECTED DATABASE] and then make changes.

For example: to display all wait type events associated with dbllink (currently events that are considered as not affecting performance):
1. First select the database.
2. Look for waits connected to dblink - enter the word "dblink" in the search field (as on the screen below).

3.Dblink Waits are assigned to a Wait group that doesn't affect performance and this should be changed by edit the row (press the Edit button) and uncheck checkbox [Is ILDE event] in details.
4. Repeat operations for the rest of Waits from the dblink group.

The change made here will be visible on the Waits chart at the next snap (after the change).

Unchecking the checkbox field will cause wait to be treated as a wait affecting performance and at the moment of occurrence will increase the level of performance waits.

Every change at the database level is visible by displaying information in the dropdown field with database names. Always possible return to the factory settings by click on [Restore DBPLUS default] button.

1.3.1 Update the Waits dictionary that doesn't affect performance.

In the new version, the entry "Backup: MML%" has been added to the dictionary of Waits that doesn't affect performance. Such a configuration means that all types of Waits that begin with this phrase will be considered as not affecting performance and will not be included in the wait statistics.

1.4 *Change in the way alerts are sent by email*

In the latest version of the application has been added the ability to set up the sending of information about alerts by email one by one for the given Reason. Until now information about alerts via email has been sent collectively for a given database. As part of such e-mail, the Client get information about several events grouped in the e-mail at the same time.

By check [Separate email for each reason], information about alerts will come separately - each email is a separate problem in a given database. Configurations can be set globally for all databases.

As part of this change, email information will be sent separately for a given reason. The e-mail headline will be changed, where information with the name of the database and the reason for the alert will be.
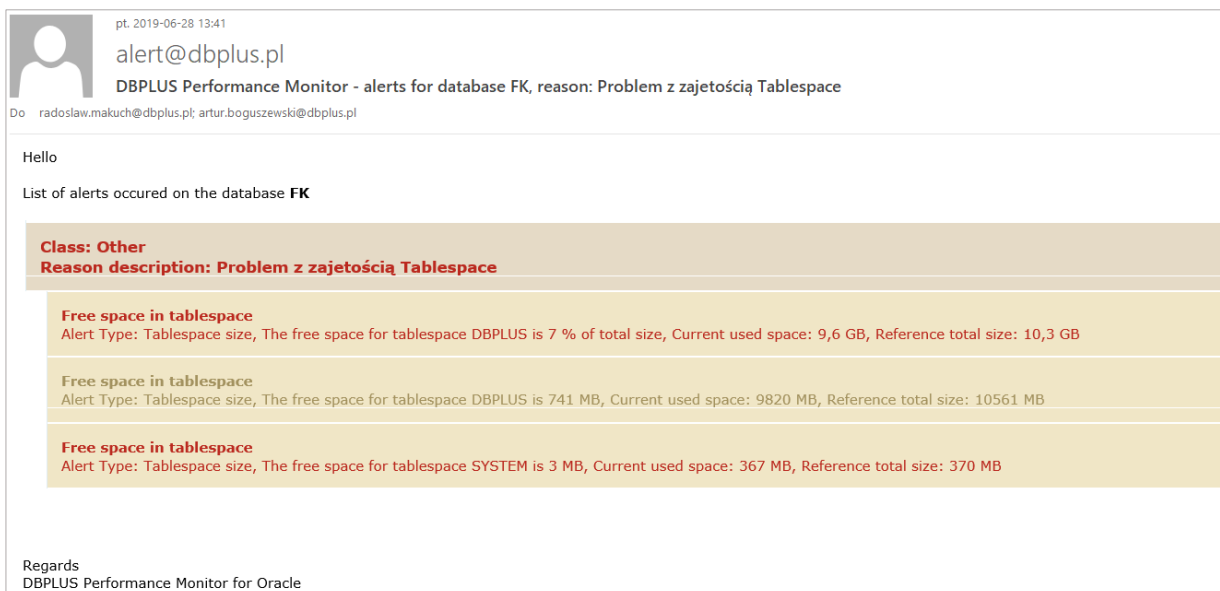
1.5   *New alert definitions*

New alert definitions have been added in the new version. They are available in Configuration> Alert setings> Alert definition.

List of new alert definitions:
- Load trends: Session inactive count,
- Load trends: UNDO/Undo Space Used,
- Load trends: UNDO/Record Count in Undo,
- Load trends: UNDO/Session using Undo
- Load trends: SORT/Sort Space used,
- Load trends: SORT/Session using sort,

▪ Alert based on SQL statement (returning data grid).

Based on new definitions, new definitions of the cause of the problem have been added [Reasons & Problems definition].

Alerts definition tab
Alert definitions on the main level are updated, threshold (critical/ warning) values are restored to defaults
New definitions added by users with own queries "Alerts based on sql statements" (online / trends) are not overwritten at any level.

All changes made by users at the instance/database level are preserved and do not change.

Reasons & problem definition
The new reason definitions added by the user are not updated.
Modified reason definitions (name or class change) is not updated
All changes made by users at the instance/database level are not updated.

Only reason definitions that has not been modified by the user is updated.
Changes at the rule level without rename reason or class change will be overwritten during the upgrade.

1.5.1 Session inactive count.

The information that activate the alarm is collected based on the Load Trend, that's why the alert is available in the Load trends group. This alert verifies the number of inactive sessions that run on the database. Depends on the configuration, User can compare the level of thresholds (warning, critical) relative to:
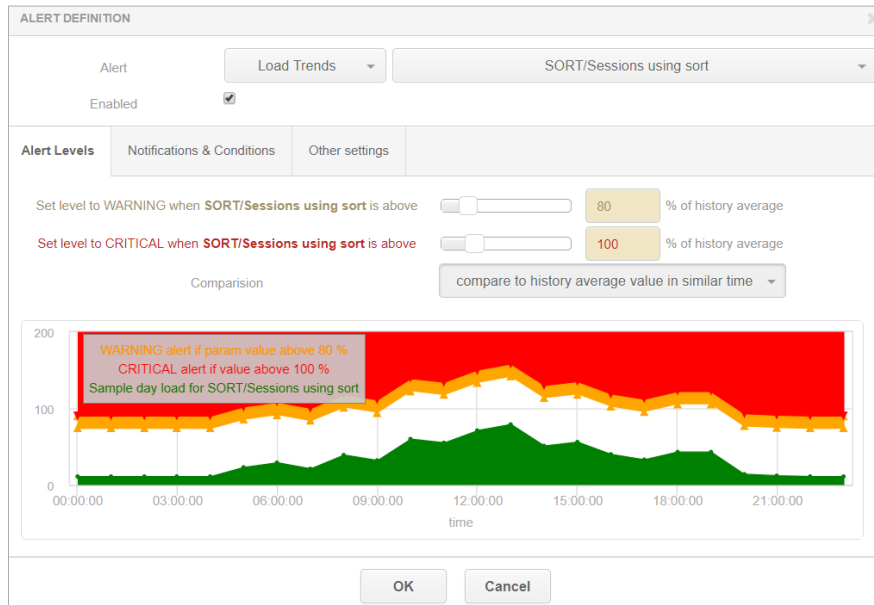- parameter [user processes],
- to the historical value determined for a similar time interval,
- up to the maximum value.
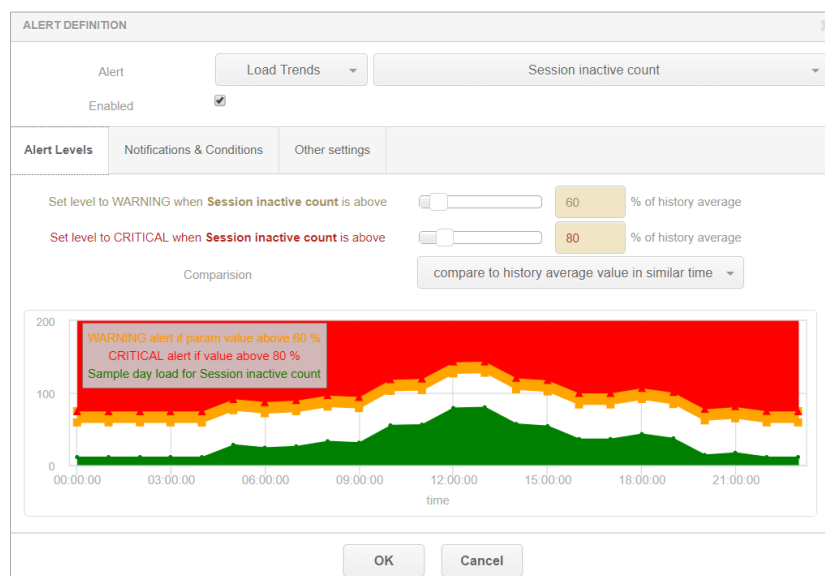
1.5.2 SORT/Sort Space used, SORT/Session using sort

New alerts were based on statistics added in the latest version for Oracle. They all apply to statistics calculated as part of the Load Trend. The Sort Space used alarm is about the occupancy of the temporary space. Session that use sort alarm related to the number of sessions that use the temporary space. User can set threshold values in relation to the highest historical value or compare with values achieved in a similar period of time in previous days (default period of 30 last days).

ALERT DEFINITION ✕

Alert | Load Trends ▾ | SORT/Sessions using sort ▾

Enabled ☑

Alert Levels | Notifications & Conditions | Other settings

Set level to WARNING when **SORT/Sessions using sort** is above | 80 | % of history average

Set level to CRITICAL when **SORT/Sessions using sort** is above | 100 | % of history average

Comparison | compare to history average value in similar time ▾

WARNING alert if param value above 80 %
CRITICAL alert if value above 100 %
Sample day load for SORT/Sessions using sort

200

100

0
00:00:00   03:00:00   06:00:00   09:00:00   12:00:00   15:00:00   18:00:00   21:00:00
time

OK   Cancel

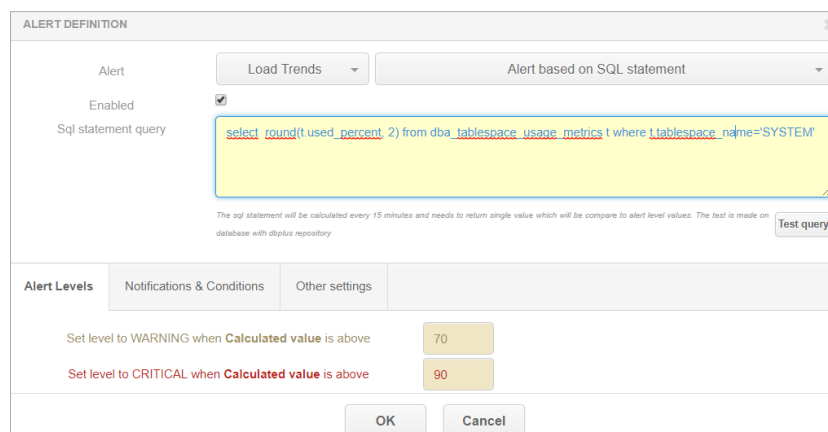### 1.5.3 UNDO/Undo Space Used, UNDO/Record Count in Undo, UNDO/Session using Undo.

New alerts were based on statistics added in the latest version of the application. They all apply to statistics calculated as part of the trend. The Undo Space used alarm is about the occupancy of UNDO space. Session that use Undo alarm related to the number of sessions that use the UNDO space. Record Count in Undo is calculated based on the number of records that are currently in the Undo. User can set threshold values in relation to the highest historical value or compare with values achieved in a similar period of time in previous days (default period of 30 last days).

1.5.4 Alert based on SQL statement (returning data grid)

The new alert consists in executing a query created by the User. The query is run once every 15 minutes. Depending on the selection of the alert definition, the query may return:
▪ single row with one column (Alert based on SQL statement),
In this case, it is possible to make the returned value dependent on the threshold above the alarm will be activated (Warnig / Critical Thresholds possible). In the example below, the query returns the occupancy of the tablespace "SYSTEM", the alarm will be activated, the table space will be filled above 70% (Warning) and 90% (Critical).

ALERT DEFINITION ✕

Alert | Load Trends ▾ | Alert based on SQL statement ▾

Enabled ☑

Sql statement query | select round(t.used_percent, 2) from dba_tablespace_usage_metrics t where t.tablespace_name='SYSTEM'

The sql statement will be calculated every 15 minutes and needs to return single value which will be compare to alert level values. The test is made on database with dbplus repository   Test query

Alert Levels | Notifications & Conditions | Other settings

Set level to WARNING when **Calculated value** is above | 70

Set level to CRITICAL when **Calculated value** is above | 90

OK   Cancel

▪ multiple rows with more columns (Alert based on SQL statement (returning data grid)).
If the user wants the query to return more data, select the type of alert that returns the entire table. In the example below, the alarm will be returned if the conditions saved in the query are met. If the condition is not met and the query returns null, the alarm will not be activated. In this case, when the query returns the name of the table space whose occupancy exceeds 90%. As part of the alert, the query result will be returned in tabular form.

An example the result for the query:

1.6 *General improvements*

1.6.1 Added support for SSL / Oracle Cloud Wallet

The latest version of the application support for connecting databases to monitoring using SSL certificates contained in Oracle Cloud Wallet has been added.

1.6.2 Improve the ergonomics of display data on the Sites

In the latest version of the application, the presentation of data on individual pages has been improved. The correction [consisted in the modification of pages where empty sections were visible which could not be minimized or moved].

### 1.6.3 Add the new parameter that control the operation of the application

In the newest version a parameter that query statistics are collected has been added. The parameter is the number of seconds that a given query must last for all executions of a given query during a snap (15 minutes). If the query is shorter than the parameter value, the query statistics data is not collected.

The default value for the Oracle database is 5 seconds, it means that the query data will be collected and presented in a given snap when the duration of all runs of this query exceeds 5 seconds.

1.6.4 Improving performance of SQL 3D screen

The latest version has been modified to display information on the SQL 3D chart. In some versions of top browsers, when the number of points on the chart is too high, the screen has been loading for a long time. The problem has been solved, and additionally, the ability to collect information about the query / plan ID has been added by click the [plus] button with the query identifier displayed above the graph.
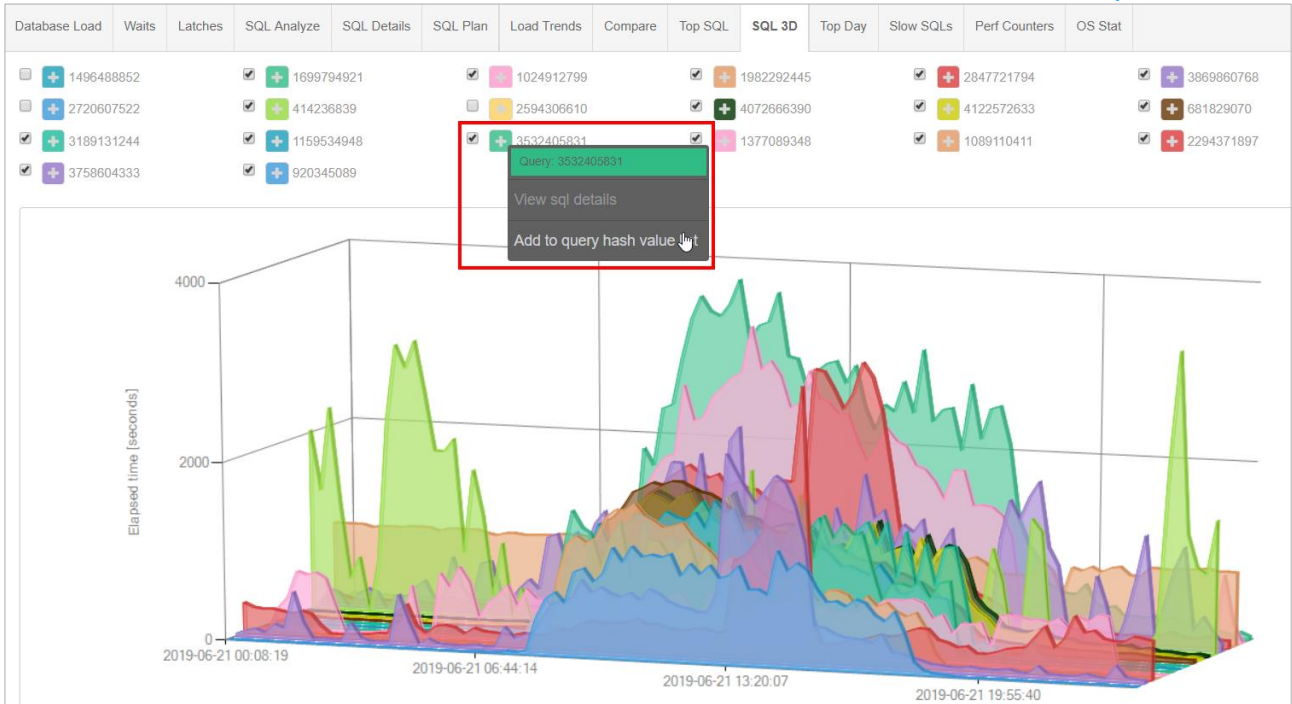
1.6.5   Collecting information about Waits and Latch after a day

Until now, detailed information on the level of Waits and Latches were collected after snap and stored for a maximum of 30 days. In the latest version, a mechanism for recording information about the details of objects grouped after a day has been made. This information (grouped after day) will be available without restrictions for the period indicated by the user.

Important! Information after day is collected from the moment of uploading the new version.