

DBPLUS
Performance Monitor for Oracle
description of changes in version 2019.3

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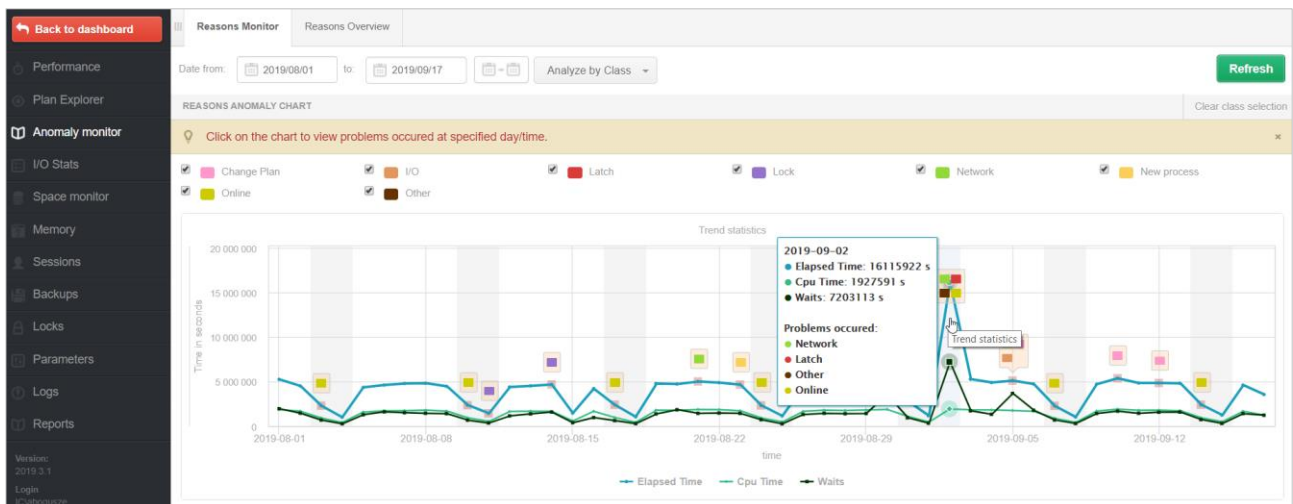
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Below is a list of changes in the DBPLUS Performance Monitor system for monitoring Oracle databases.

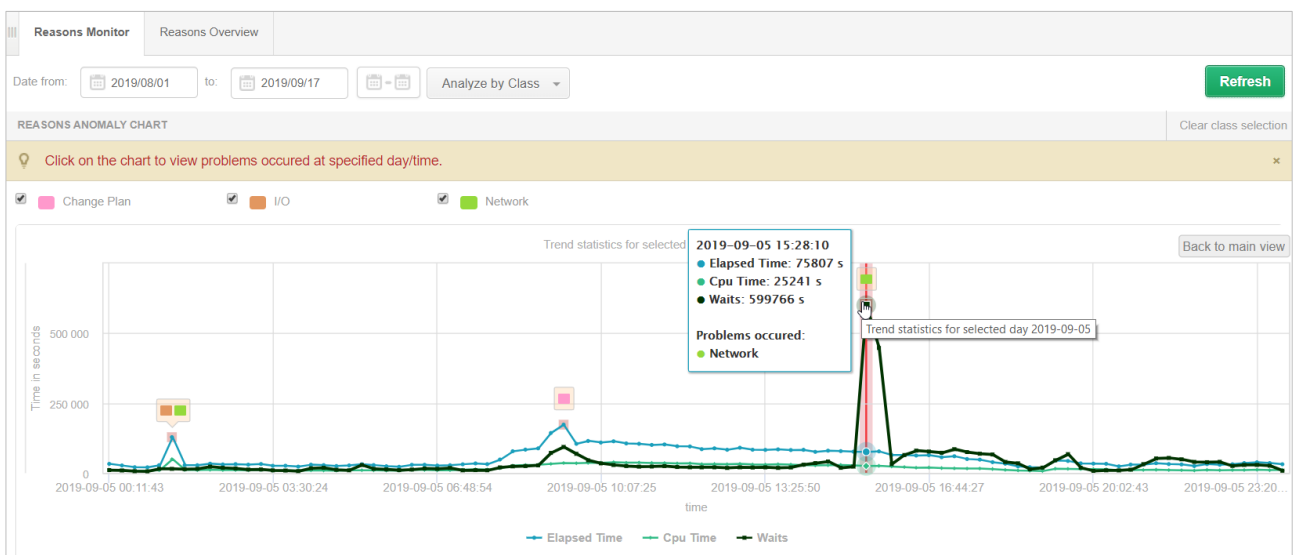
1 New in version 2019.3

1.1 Anomaly Monitor

In the new version of the application the Anomaly Monitor module has been improved. The method of alert detection and presentation has been modified. After entering the screen, a graph from the last 14 days is presented, where a performance problem occurred. The date range can be freely modified. The screen presents problems grouped by class (Analyze by Class), it is also possible to change the presentation and group them by reason of problems (Analyze Reason) by default.



Problems on the chart are highlighted by colored icons (a different color for each class / reason). For further analysis, select the day on which the problems occurred. After select a specific day (point on the graph) a detailed graph for a given day will be presented, especially the moment when performance problems occurred. Each point on the graph represents a given snap (15 minutes). By choosing a point on the graph you receive information on statistics that have been exceeded at the moment and information on the cause of the problem.



In the new version, the Anomaly Monitor module has been extended with problem detection, which additionally analyzes database performance at a given time and presents the result of this analysis in the form of a problem.

PROBLEMS REPORTED IN SPECIFIED TIME 2019-09-02 10:19:27	
Slowing down the processes due to high simultaneous buffer access	
Class	Latch
Reason details & action	The cache buffers chains latches are used to protect a buffer list in the buffer cache. These latches are used when searching for, adding, or removing a buffer from the buffer cache. Please analyse queries that increase executions or number of buffer gets. You can also go to Sessions>>Session History module and look for the session run with event 'latch: cache buffers chains'.
Elapsed Time	Alert Type: Load Trends, The measured statistic value is 28.6 times higher than average , Last value: 3457932 s, Reference history value: 116637 s
Wait Event Time	Alert Type: Load Trends, The measured statistic value is 1137.6 times higher than average , Wait: latch: cache buffers chains, Last value: 98724403 s, Reference history value: 86707 s
Wait Event Time	Alert Type: Load Trends, The measured statistic value is 1808.2 times higher than average , Wait: wait list latch free, Last value: 29674627 s, Reference history value: 16402 s

As part of defining the causes of the problem in the Alerts settings menu in the Reasons & Problems definitions tab for a given problem cause, you can specify and add a detailed description of the problem with an indication of the place for detailed analysis.

REASON DEFINITION

Main description

Data writes time problem caused by slow I/O response

Reason Class

I/O

Details description

Slow data writes problem is detected. For detailed verification, go to the I/O Analyze tab in the I/O Stats menu.

Hints for further analysis

Calculation Type

Based on Trends

Enabled

☒

Rules & Formulas

Notifications & Conditions

AND

OR

Trends:Elapsed Time

Delete

AND

OR

IO:Single Block Write time

Delete

IO:Write time

Delete

NOT:IO:Disk writes

Delete

Rules preview: Trends:Elapsed Time AND (IO:Single Block Write time OR IO:Write time) AND NOT:IO:Disk writes AND (Trends:Wait Event Time - [buffer busy waits] OR Trends:Wait Event Time - [free buffer%])

1.1.1 New alerts definition

A new alert based on CPU utilization statistics has been added to the new version of the application. This alert can be set by comparing threshold values to:

- History average value in similar time,
- History maximum value,
- Virtual server CPU count.

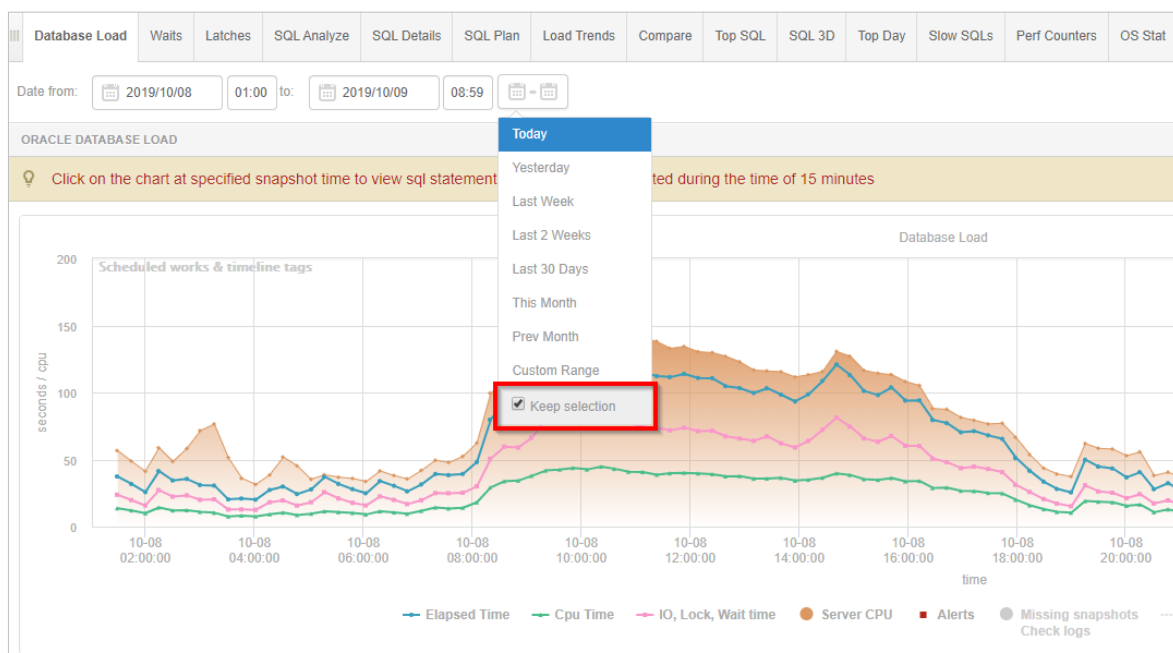
1.2 Remind and sharing settings

In the new version we have added the functionality to remember changes made on a selected tab in the database details. Currently, each page refresh, change of date or moving to a different tab results in a return to the default settings for a given tab. The introduced change consists in remembering the settings of the given tab for:

- date
- column selection in the table,
- series on the chart,
- grouping
- choices in the dropdown box,
- checkbox options.

Each setting will be remembered within a given tab. The selections made on each tab will be remembered.

If you want the selected date range to be the same for most tab, You need do select [Keep selection].



Remembering the date ("Keep selection" function) does not work on the tabs:

- Load Trends (viewing data over a large time range),
- SQL Top SQL (detailed data viewed for 1 day range),
- SQL 3D (detailed data viewed for 1 day range).

When you exit from details to the Dashboard screen, changing the database or close the application, the settings will be restored to their default settings.

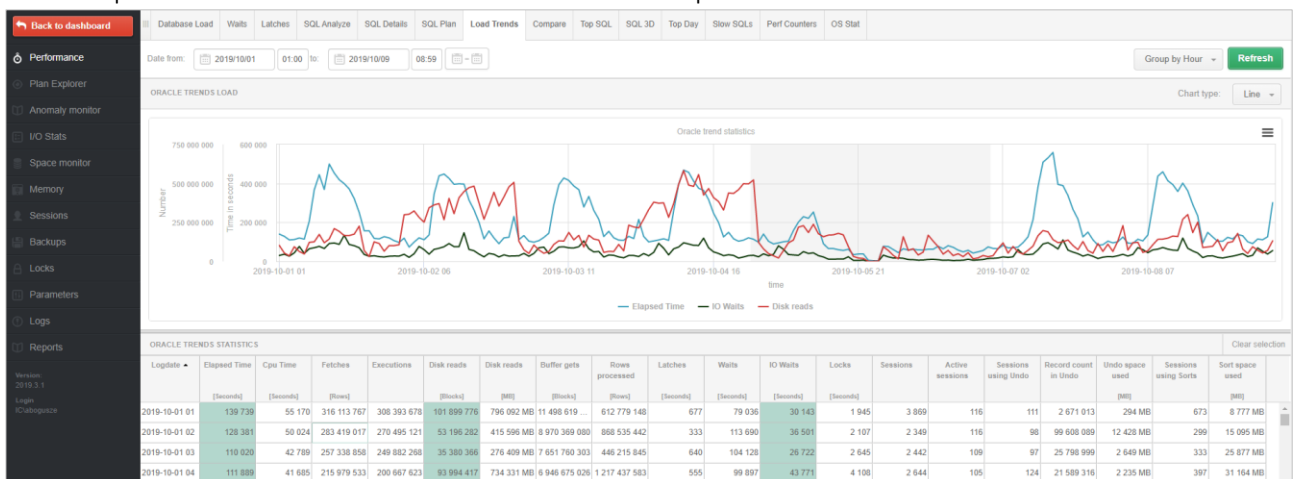
1.3 Addition hours:minutes to time filter

In the latest version of the application we have added the functionality to present data in a narrower range than today. Until now, in most charts, data could only be filtered for a given day. In this version, we have also added the hour and minute to the date, which allows you to narrow down the range of displayed data.

The changes made to pages:

- Instance Load,
- Waits (Overview / Analyze),
- Latches,
- Load Trends,
- Slow SQLs,
- Perf Counters,
- OS Stat,
- I/O Stats (Analyze / Archivelogs),
- Session history,
- Locks history.

An example of the Load Trends tab has a limited view presents below:



If a narrow time range is selected, in addition to the data presentation on the chart, the performance statistics under the chart are also calculated to make them match the selected range.

1.4 Improvements in Show Plan Objects

In the latest version, the object highlighting function has been added in the Show Plan Objects window in the query details. After selecting the object in the table [OBJECTS USED IN EXPLAIN PLAN] - the table or index will be highlighted in the content of the query and the query plan. Depending on the object, tables are highlighted in green, index in yellow.

View for the selected table:

SQL TEXT				EXPLAIN PLAN								Close Plan Objects	
DELETE top (5) FROM dbplus_tab_cpu_usage WHERE dat2 <= @dateToDel				<pre> --Database: DBPLUS --DELETE (Cues = 0.0222552, Rows = 0, CPU = 0, IO = 0) --Clustered Index Delete ([dbplus_tab_cpu_usage].[dbplus_tab_cpu_usage_1]) (Cues = 0.0222552, Rows = 1, CPU = 0.000002, IO = 0.02) --Top (Cues = 0.0222552, Rows = 1, CPU = 0.000002, IO = 0) --Index Seek ([dbplus_tab_cpu_usage].[dbplus_tab_cpu_usage_2]) (Cues = 0.002251, Rows = 1, CPU = 0.000001, IO = 0.001125) --Plan Compilation Time: 1 ms --Sampled values used for parameters at plan compilation time --@v: 5000 --@dateToDel: '2019-07-03 10:56:17.350' </pre>									
OBJECTS USED IN EXPLAIN PLAN				INDEXES FOR SELECTED OBJECT ([DBO].[DBPLUS_TAB_CPU_USAGE])									
Type	Owner	Object Name	Table Name	Database	Index name	Enabled	Index columns	Included columns	Seeks	Scans	Lookups	Updates	
index	[dbo]	[dbplus_tab_cpu_usage_1]	[dbplus_tab_cpu_usage]	[DBPLUS]	dbplus_tab_cpu_usage_1	✓	server_id, dat1		67	58	0	42 637	
index	[dbo]	[dbplus_tab_cpu_usage_2]	[dbplus_tab_cpu_usage]	[DBPLUS]	dbplus_tab_cpu_usage_2	✓	dat2		27 597	16	0	42 637	
table	[dbo]	[dbplus_tab_cpu_usage]	[dbplus_tab_cpu_usage]	[DBPLUS]									

View for the selected index:

SQL TEXT				EXPLAIN PLAN								Close Plan Objects	
<pre> SELECT p.Name AS ProductName, NonDiscountSales = (OrderQty * UnitPrice), Discounts = ((OrderQty * UnitPrice) * UnitPriceDiscounts) FROM Production.Product AS p WITH(INDEX(PK_Product_ProductID)) INNER JOIN Sales.SalesOrderDetail AS sod ON p.ProductID = sod.ProductID WHERE p.ActiveBOM = @a ORDER BY ProductName DESC </pre>				<pre> --SELECT (Cues = 33.2487, Rows = 0, CPU = 0, IO = 0) --Compute Scalar (Cues = 33.2487, Rows = 151,634, CPU = 0.000159384, IO = 0) --Inner Join-Nested Loops (Cues = 33.2487, Rows = 151,634, CPU = 0.000747859, IO = 0) --Inner Join-Nested Loops (Cues = 32.7051, Rows = 151,634, CPU = 0.000747859, IO = 0) --Sort (Cues = 32.618, Rows = 41,2841, CPU = 0.00000000, IO = 0.011611) --Inner Join-Nested Loops (Cues = 32.4912, Rows = 139,04, CPU = 0.00002, IO = 0) --Index Scan ([Product].[PK_Product_ProductID]) [p] (Cues = 0.040038, Rows = 139,04, CPU = 0.142058, IO = 0.8) --RID Lookup (Cues = 31.9618, Rows = 41,282, CPU = 0.0001852, IO = 0.001228) --Index Seek ([SalesOrderDetail].[PK_SalesOrderDetail_ProductID]) [sod] (Cues = 0.1784, Rows = 2,9934, CPU = 0.0001) --Clustered Index Scan ([SalesOrderDetail].[PK_SalesOrderDetail_SalesOrderID]) [sod] (Cues = 0.0001) </pre>									
OBJECTS USED IN EXPLAIN PLAN				INDEXES FOR SELECTED OBJECT ([SALES].[SALESORDERDETAIL])									
Type	Owner	Object Name	Table Name	Database	Index name	Enabled	Index columns	Included columns	Seeks	Scans	Lookups	Updates	
index	[Produ...	[PK_Product_ProductID]	[Product]	[adv_works]									
index	[Sales]	[IX_SalesOrderDetail_ProductID]	[SalesOrderDetail]	[adv_works]	AK_SalesOrderDetail_rowguid	✓	rowguid						
index	[Sales]	[PK_SalesOrderDetail_SalesOrderID_SalesOrderID]	[SalesOrderDetail]	[adv_works]	IX_SalesOrderDetail_ProductID	✓	ProductID						
table	[Produ...	[Product]	[Product]	[adv_works]									
table	[Sales]	[SalesOrderDetail]	[SalesOrderDetail]	[adv_works]	PK_SalesOrderDetail_SalesOrderID	✓	SalesOrderID, SalesOrderID						

In case there is a view in the query, then the table object will not be highlighted in the view content.

A column search engine has also been added, after select an object you can filter the columns by enter their name in the search field. The columns will filter according to the value entered.

SQL TEXT

```
INSERT INTO dbplus_tab_cpu_usage with(rowlock,repeatableread)
(server_id,dat1,dat2,num1,num2,num3,wnum1,wnum2,wnum3,lnum1,anum1,anum2,anum3,anum4,altnum1,altnum2,az_num1,az_num2,az_num3,az_num4,az_num5,az_num6,az_num7,az_num8,az_num9,az_num10,num_outage) VALUES
(@server_id,@dat1,@dat2,@num1,@num2,@num3,@wnum1,@wnum2,@wnum3,@lnum1,@anum1,@anum2,@anum3,@anum4,@altnum1,@altnum2,@az_num1,@az_num2,@az_num3,@az_num4,@az_num5,@az_num6,@az_num7,@az_num8,@az_num9,@az_num10,@num_outage)
```

EXPLAIN PLAN

```
--Database: DBPLUS
--INSERT ( Cues = 0.0200002, Rows = 0, CPU = 0, IO = 0 )
--Clustered Index Insert ([dbplus_tab_cpu_usage].[dbplus_tab_cpu_usage_1])
--Plan Compilation Time: 0 ms
--Sampled values used for parameters at plan compilation time
--@num_outage: 0
--@az_num10: 0
--@az_num9: 0.
--@az_num8: 0.
```

OBJECTS USED IN EXPLAIN PLAN

Type	Owner	Object Name	Table Name	Database
index	[dbo]	[dbplus_tab_cpu_usage_1]	[dbplus_tab_cpu_usage]	[DBPLUS]
table	[dbo]	[dbplus_tab_cpu_usage]	[dbplus_tab_cpu_usage]	[DBPLUS]

INDEXES FOR SELECTED OBJECT [DBO].[DBPLUS_TAB_CPU_USAGE]

Index name	Enabled	Index columns	Included columns
dbplus_tab_cpu_usage_1	<input checked="" type="checkbox"/>	server_id, dat1	
dbplus_tab_cpu_usage_2	<input checked="" type="checkbox"/>	dat2	

Object columns

DDL info

Properties

Details for table [dbo].[dbplus_tab_cpu_usage]

an

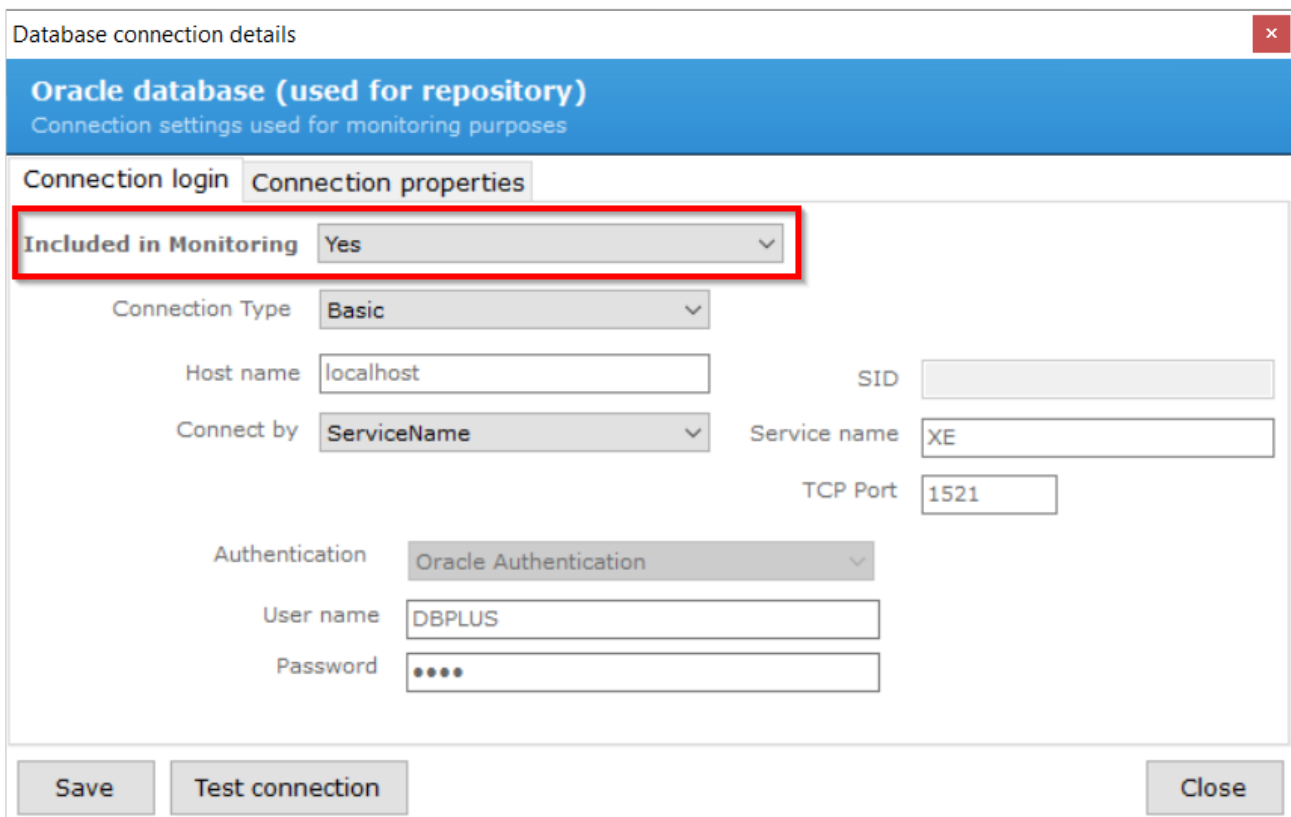
Column	Type	Max Length	Position	Is identity	Is computed	Is nullable	Is sparse	Density
anum1	bigint	8	11	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
anum2	bigint	8	12	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
anum3	bigint	8	13	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
anum4	decimal	9	14	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	

1.5 General improvements

1.5.1 Ability to view statistics for a disabled database

In the new version of the application, the ability to view statistics for a database that was previously excluded from monitoring has been added. Data collected during monitoring are saved in the repository database. If the database has been excluded from monitoring and deleted, it is still

possible to view the statistics collected. To do this, change the flag in the [Included in Monitoring] field to 'Yes' and save the change.



Database connection details

Oracle database (used for repository)
 Connection settings used for monitoring purposes

Connection login | **Connection properties**

Included in Monitoring Yes

Connection Type Basic

Host name localhost SID

Connect by ServiceName Service name XE

TCP Port 1521

Authentication Oracle Authentication

User name DBPLUS

Password

Save Test connection Close

1.5.2 Improve deleting historical data

In the new version we have corrected the problem related to deleting historical data. By default, detailed data is kept for up to 30 days (default value, depending on the KEEP_SNAPSHOT_HISTORY_DAYS parameter settings). The problem occurred in specific cases when the delete thread was started on a database that was not available. In this case, the data was not deleted. The problem has been fixed.

1.5.3 Improvement in the authorization module

The new version includes an amendment that applies to page permissions in the application (Security menu). The problem was in the scenario when the user shared their own and domain group permissions, where many different permission profiles were used. The problem was the lack of access to all screens despite the permissions assigned to the login.

1.5.4 Improvements in session history

In the new version, the way of viewing session history available in the Session menu in the Session / Sort / Undo history tab has been modified. After selecting the search filter, the result is returned, the first 10,000 records sorted by date from the latest to the oldest. To download the remaining records, just move the slider to the last returned records, which will top up the remaining data. In addition, each click on the column heading in the table will download all for the selected range in the filter.

Sessions

Sort usage sessions

Undo usage sessions

Sessions history

Session / Sort / Undo history

From:

2019/09/09

00:00

to:

2019/09/30

23:59

Using Hash Value/Sql id:

Enter hash value or sql id

Username:

EZAMOW

Sid:

Refresh

Show additional filters

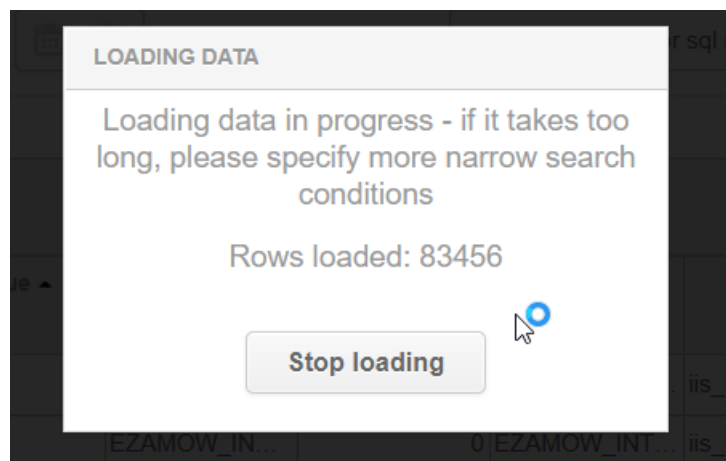
Sessions

Sort

Undo

Logdate	Sid	Serial#	Hash Value	User	Active Time [Seconds]	Schema	OS User	Machine	Program ▲	Module	Wait	Blocking session
9/26/2019 7:23:06 AM	34135	8677	975339329	EZAMOW_INT...	17	INTER	iis_user	WORKGROU...	w3wp.exe	w3wp.exe	db file sequen...	0
9/26/2019 7:16:21 AM	45256	2839	975339329	EZAMOW_INT...	0	INTER	iis_user	WORKGROU...	w3wp.exe	w3wp.exe	db file sequen...	0
9/26/2019 7:07:32 AM	34738	5405	975339329	EZAMOW_INT...	0	INTER	iis_user	WORKGROU...	w3wp.exe	w3wp.exe	db file sequen...	0
9/26/2019 6:57:26 AM	25963	475	975339329	EZAMOW_INT...	1	INTER	iis_user	WORKGROU...	w3wp.exe	w3wp.exe	db file sequen...	0
9/26/2019 6:51:57 AM	44946	4921	975339329	EZAMOW_INT...	1	INTER	iis_user	WORKGROU...	w3wp.exe	w3wp.exe	db file sequen...	0
9/26/2019 6:46:04 AM	11847	1837	975339329	EZAMOW_INT...	0	INTER	iis_user	WORKGROU...	w3wp.exe	w3wp.exe	db file sequen...	0
9/26/2019 6:30:20 AM	45977	4277	975339329	EZAMOW_INT...	0	INTER	iis_user	WORKGROU...	w3wp.exe	w3wp.exe	db file sequen...	0

If the data in the filter is too general and the returned results contain many records, a message will be displayed with information about the number of records loaded. After loading the data, the message will close automatically. The user can stop loading at any time by clicking the [Stop loading] button.



1.5.5 Searching for sessions online

The new version has an additional Hash value filter added to search for queries on the online session page (Sessions menu). After entering the Hash value (or Sql id) in the search field, the list of queries will be filtered only for the selected query. The functionality also works with other filters.

Back to dashboard

Performance

Plan Explorer

Anomaly monitor

IO Stats

Space monitor

Memory

Sessions

Sessions

Session Resources

Backups

Locks

Parameters

Logs

Reports

Version

Sessions

Sort usage sessions

Undo usage sessions

Sessions history

Session / Sort / Undo history

Active sessions

Users only

Min elapsed time:

sec.

Sid

Hash value:

414236839

Username:

upper case

Refresh

Show additional filters

SELECT SESSION (LAST REFRESHED: 21:37:54)

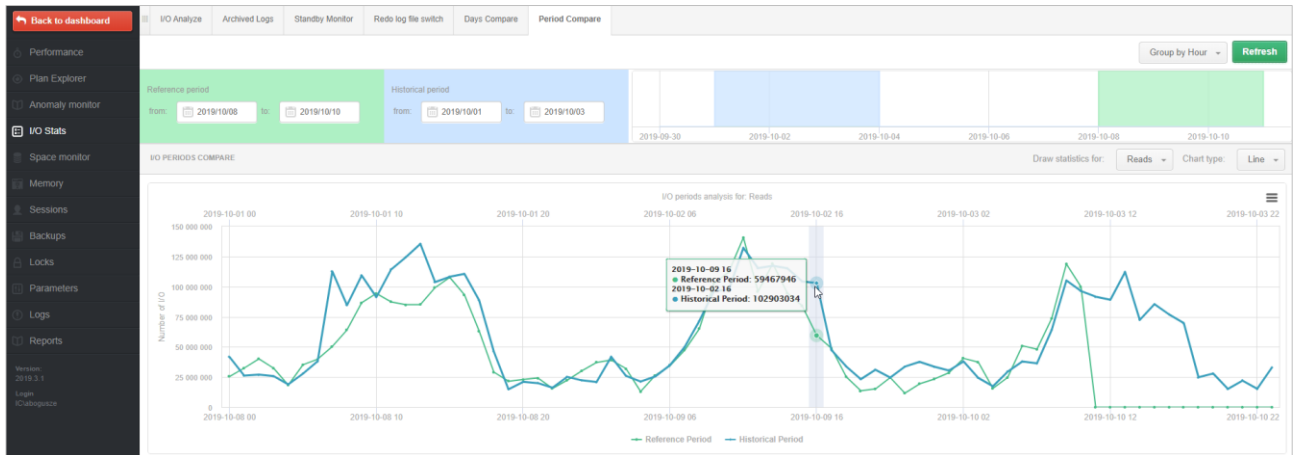
Kill session

Logon time	Sid	Serial	Hash Value	Username	Status	Elapsed Time [Seconds]	Schema	OS user	Process (server)	Process (client)	Machine	Program	Module	Wait	Blocking session
2019-09-30 21:36:17	9213	169	414236839	DBPLUS	ACTIVE		1 DBPLUS	LOCAL SE...	53019282	2616.1	NT AUTHO...	DbPlus Re...	DBPLUS D...	SQL*Net message to...	
2019-09-30 21:36:17	455...	3009	414236839	DBPLUS	ACTIVE		1 DBPLUS	LOCAL SE...	4785472	2616.1	NT AUTHO...	DbPlus Re...	DBPLUS D...	SQL*Net more data t...	
2019-09-30 21:36:17	159...	1829	414236839	DBPLUS	ACTIVE		0 DBPLUS	LOCAL SE...	11540636	2616.1	NT AUTHO...	DbPlus Re...	DBPLUS D...	SQL*Net more data t...	
2019-09-30 21:36:17	172...	8755	414236839	DBPLUS	ACTIVE		0 DBPLUS	LOCAL SE...	20846328	2616.1	NT AUTHO...	DbPlus Re...	DBPLUS D...	SQL*Net more data t...	
2019-09-30 21:36:17	229...	27117	414236839	DBPLUS	ACTIVE		0 DBPLUS	LOCAL SE...	21628120	2616.1	NT AUTHO...	DbPlus Re...	DBPLUS D...	SQL*Net message to...	
2019-09-30 21:36:17	9035	12605	414236839	DBPLUS	ACTIVE		0 DBPLUS	LOCAL SE...	48497710	2616.1	NT AUTHO...	DbPlus Re...	DBPLUS D...	SQL*Net message to...	
Count sessions 6															
SQL Operation progress Statistics Session Waits															
STATEMENT TEXT (SQL ID: as8s6ccb1h57)															
SELECT scn, RAWTOHEX(scn), row_id, timestamp, data_obj#, seg_owner, seg_name, table_name, seg_type, rollback, operation, cdf, info, sql_redo FROM v\$logmnr_contents WHERE scn >= :SYS_B_000" AND scn <= :SYS_B_001" AND operation <> :SYS_B_002" AND NOT (operation = :SYS_B_003" AND sql_redo IS NULL) AND (operation IN (:SYS_B_004", :SYS_B_005", :SYS_B_006") OR (seg_owner = :SYS_B_007" AND seg_name IN (:SYS_B_008", :SYS_B_009", :SYS_B_010", :SYS_B_011", :SYS_B_012", :SYS_B_013", :SYS_B_014", :SYS_B_015", :SYS_B_016", :SYS_B_017", :SYS_B_018", :SYS_B_019", :SYS_B_020", :SYS_B_021") OR (seg_owner = :SYS_B_022" AND table_name IN (:SYS_B_024", :SYS_B_025", :SYS_B_026", :SYS_B_027") OR (seg_owner = :SYS_B_028" AND table_name = :SYS_B_029") OR (seg_owner = :SYS_B_030" AND table_name IN															

1.5.6 Improve Period compare tabs

In the new version we have improved the performance of the statistics comparison tool for the selected range [Period Compare]. Comparing statistics for a selected period of time is available in:

- I/O Stats menu,
- Performance menu in the Waits tab,
- Performance menu on the Compare tab.



In each of the aforementioned tabs, period comparison is available in groups for hours and days. By choosing a point on the graph, we will receive information about the value of a given statistic for a selected hour or day depending on the selected grouping level.