

DBPLUS  
Performance Monitor for PostgreSQL  
description of changes in version 2021.1

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Below is a list of changes to the DBPLUS Performance Monitor system for monitoring PostgreSQL instances.

## *New in version 2021.1*

### **1.1. Anomaly Monitor**

The Anomaly Monitor module is available in the DBPLUS Performance Monitor application. The module presents information about detected problems in the monitored PostgreSQL instance. Data on the website are presented in two tabs:

- Anomaly Monitor
- Alerts Browser

The **Anomaly Monitor** tab presents the events detected in the monitored PostgreSQL instance based on the trend study for the most important performance statistics. The verification covers queries performed in the database, the performance of the disk array, and statistics on the main waits that affect the database performance. Monitoring has information about issues divided into classes:

- **Change Plan**

The problems presented in this class relate to changing the execution plan. In the event of detecting a decrease in the performance of a given query, the application verifies whether the event is related to a plan change, and at the same time checks whether a faster / better plan can be found in the history of the query. The number of days taken into account to find a faster plan depends on the **History Days for Plan Change Estimation** parameter available in the **Alerts Settings** menu in the General settings tab. Default value is set to 30 days.

- **I/O**

This class indicates problems with the disk array. The application checks whether the indicators related to the performance of the disk array have deteriorated. Additionally, the level of expectations related to I/O resources is verified.

- **Lock**

The class contains events related to the occurrence of locks in the monitored PostgreSQL instance.

- **New SQL Statement**

The reason for the occurrence of such problems is the appearance of a new query that has not been performed so far or has not been previously detected by DBPLUS monitoring. At the same time, it significantly utilizes the database resources where it is performed. Information about the detection of a new query will be visible for a period of 3 days (from the occurrence moment). It depends on the new parameter **Number of days to consider the statement as NEW** available in the **Alerts Settings** menu in the **General settings** tab. The **New SQL Statement** problem will also not occur if the query does not have an important impact on the performance of the monitored SQL instance.

- **SQL Statement**

The SQL Statements class indicates a problem with queries where overall Elapsed Time statistics have deteriorated. However, the source of the deterioration in query duration has not been identified.

- **SQL statement - blocks hit**

For queries assigned to this class, the amount of data read from the memory buffer has increased.

- **SQL statement - blocks read**

This class groups queries where an increase in the amount of data read from disk resources has been detected, compared to the historical trend for a given statistic.

- **SQL statement – executions**

For queries assigned to this problem class, an increase in the number of executions in a given snap was detected in relation to the query history for the last 30 days. The administrator should verify what is the reason for the sudden increase in the amount of performances associated with the problem query.

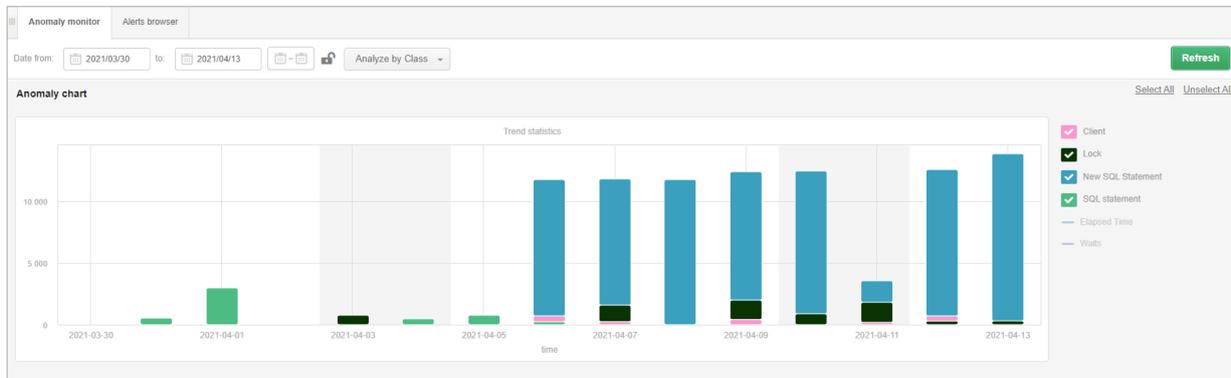
- **Other**

This class contains an increase in the level of expectations for which a dedicated class has not been defined. In the next versions of the application, the cases included in the Other class will be described and analyzed in terms of finding the source of the problem.

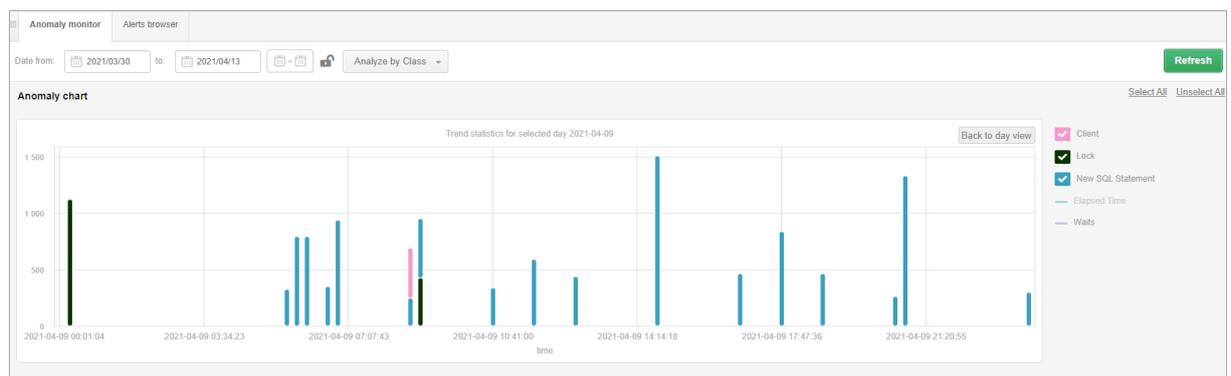
After enter the Anomaly screen, the monitor will be presented with a graph that shows the performance anomalies for the last two weeks.

**Important!!** The mechanism of calculating problems based on trends is not retroactive. Immediately after updating the application to version 2021.1, the screen may not show the above-mentioned data. Manual alert recalculation is available. Use the mechanism available in the Configuration - Alert settings menu in the Adhoc Alerts calculator tab for the monitored PostgreSQL instance.

Each class available on the chart is presented in a separate color. The height of the bar depends on the effect of the class on the database performance. The bigger / more serious problem is detected, the higher the column of the given color will be.



Below the graph, there is a list of performance problem classes that were detected in the presented period. To verify the problem, select the day by click on the chart to verify the performance problems. The next chart shows the problem classes found on a given day.



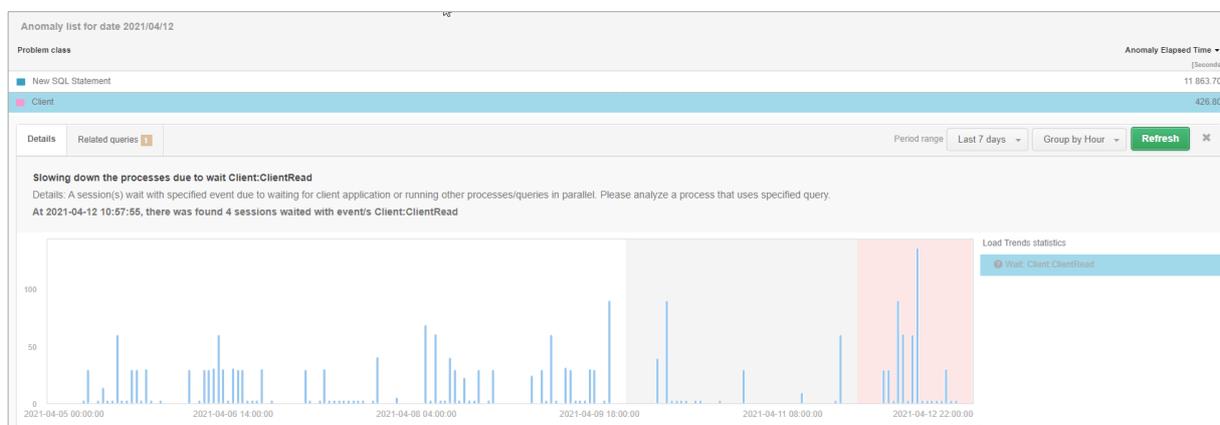
For a detailed analysis, click on the row with the problem class for which User wants to verify the cause of the problem.

Anomaly list for date 2021/04/09	
Problem class	Anomaly Elapsed Time [Seconds]
New SQL Statement	10 442.40
Lock	1 540.00
Increase of query processing time caused by locking wait Lock:relation	1 117.00
Increase of query processing time caused by locking wait Lock:transactionid	423.00
Client	444.10

The query problem for which a Execution plan change event has been detected is presented below. By selecting a given row, a panel with the details of a given query opens. In the legend on the right side of the graph, the statistics where the threshold values were exceeded are highlighted in orange.



In the case of detection of a problem related to exceeding the trend level for a given wait (eg **ClientRead** waits), the **Details** tab presents general information on the exceeded statistics for a given wait with information about the reason for the increase in the level of a given wait. In addition, the tab **Related queries** were related queries where the period of time waiting for the wait was the biggest.

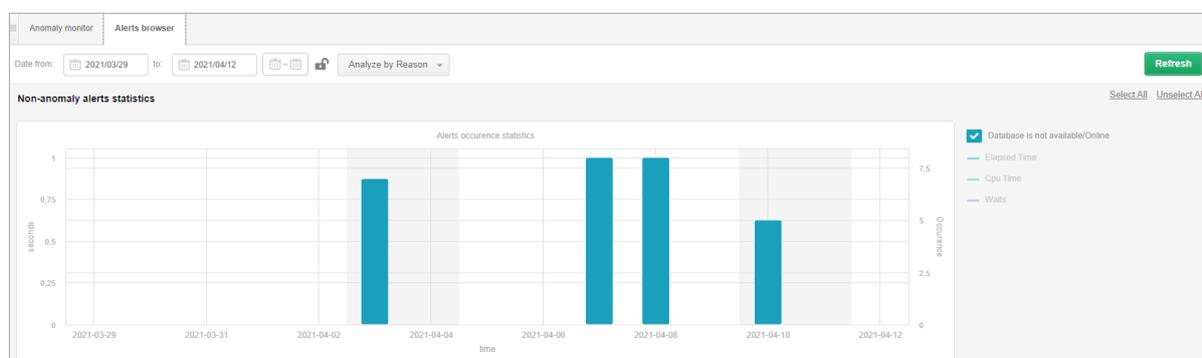


The **Alerts browser** tab contains information on events not directly related to the performance of queries performed in the PostgreSQL instance. The tab presents alerts:

- Online,
- User own alerts,
- Associated with excess space used,
- Others not related to queries.

After entering the tab, alerts are presented in the form of a graph for the last 2 weeks. The height of the bar in the graph corresponds to the number of occurrences of a given problem on a given day.

After clicking on a point on the graph, the User receives information about all the occurrences of problems on the indicated day.



### 1.1.1. Exclude queries from monitoring

Excluding queries from monitoring is a useful functionality when the alarm thresholds are often exceeded for a given query and the Administrator cannot improve the performance of a given query (e.g. in the case of a query in system views or without limiting conditions). The configuration of excluding the query from

monitoring is available in the **Configuration> Alert Settings settings** menu, in the **Exclude Alerts> SQL Statement Exclude** tab.

After entering the website, there are three options to exclude the query:

- for the query id Query hash,
- for text or a piece of query text.

Adding a new exclude is possible by clicking the **[Add new exclude]** button for the selected exclusion option. Exclusions from monitoring can always be made for a selected PostgreSQL instance. Excluding monitoring means that from that moment in the event of an alert related to the query, such alert will not be presented in the application and no e-mail notification will be sent.

QUERY ID EXCLUDE						+ Add new exclude
Instance	Query Text	Query ID	Enabled	Date added	Description	
bdatt_db	select date_part(\$1,_DATE) as day,\$2 as tm from ds_IC_USAGE_MONITORING_TZCD dt where	554875081	<input checked="" type="checkbox"/>	2021-04-13 22:08:45	Flag change from Anomaly Monitor	

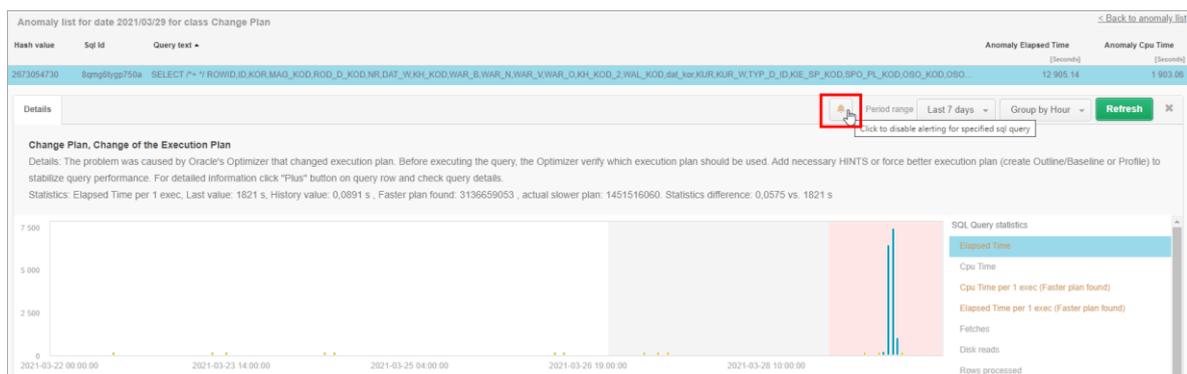
EXCLUDE BASED ON QUERY TEXT						+ Add new exclude
Instance	Query text	Enabled	Date added	Description		
all_db	select to_char(L		<input checked="" type="checkbox"/>	2021-04-13 22:09:30	exclude query by text	

In the case of re-enabling the query for alerting, select the editing options from the list and disable the given configuration or delete the entered configuration by selecting the **[Delete]** option. After changing the settings, information about problems for the query will be presented again.

**Important! After re-enabling monitoring, alerts that were not displayed at the time when the query was excluded from monitoring will not be restored.**

Excluding by query id at the moment generates an alert during the procedure, snap verifies that queries complies with the conditions of exclusion and does not generate alerts for designated queries. Verification takes place each time during the alert calculation procedure (every 15 minutes).

On the pages where alerts are visible, we have added the ability to quickly exclude queries from monitoring. To exclude, click on the "bell" icon. After accepting the selection, the given query will be added to the exclusion configuration.

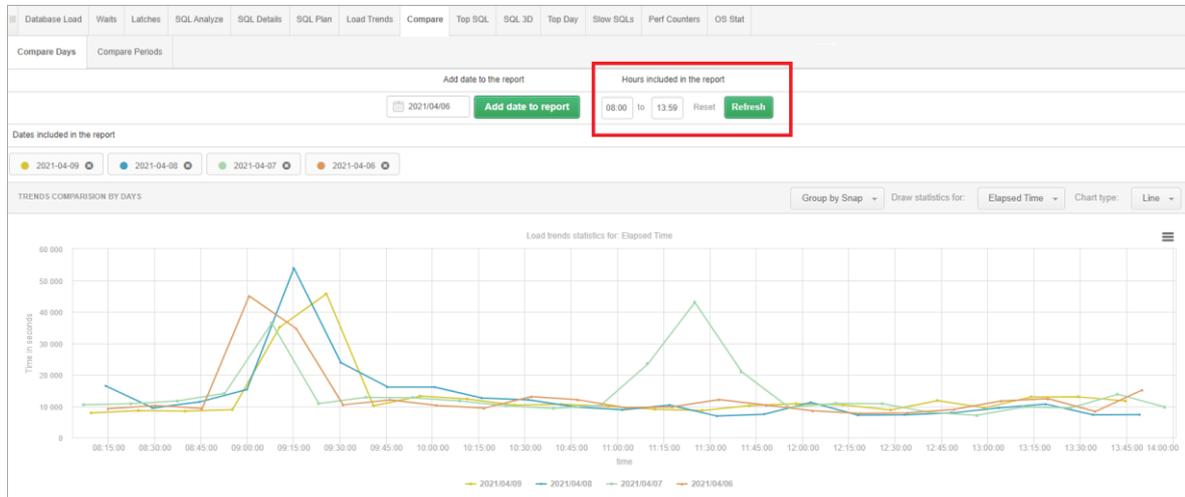


In order to re-enable the query for monitoring, the User may again un-click the exclusion from the alert level and restore the query for monitoring. In this case, the exclusion entry will be removed from the configuration.

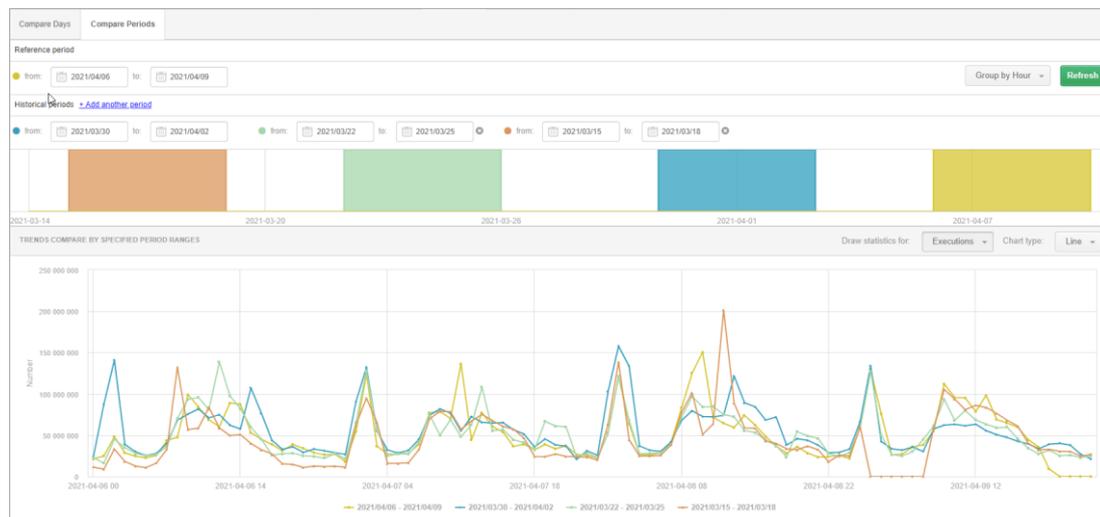
## 1.2. General improvements

### 1.2.1. Load trends Compare

In the application, it is possible to compile performance statistics for individual days. To do this, go to the **Compare - Compare Days** tab. By selecting interesting days, the User can easily compile data for a given statistics for the indicated days. Currently, we have added the ability to narrow the range for hours.

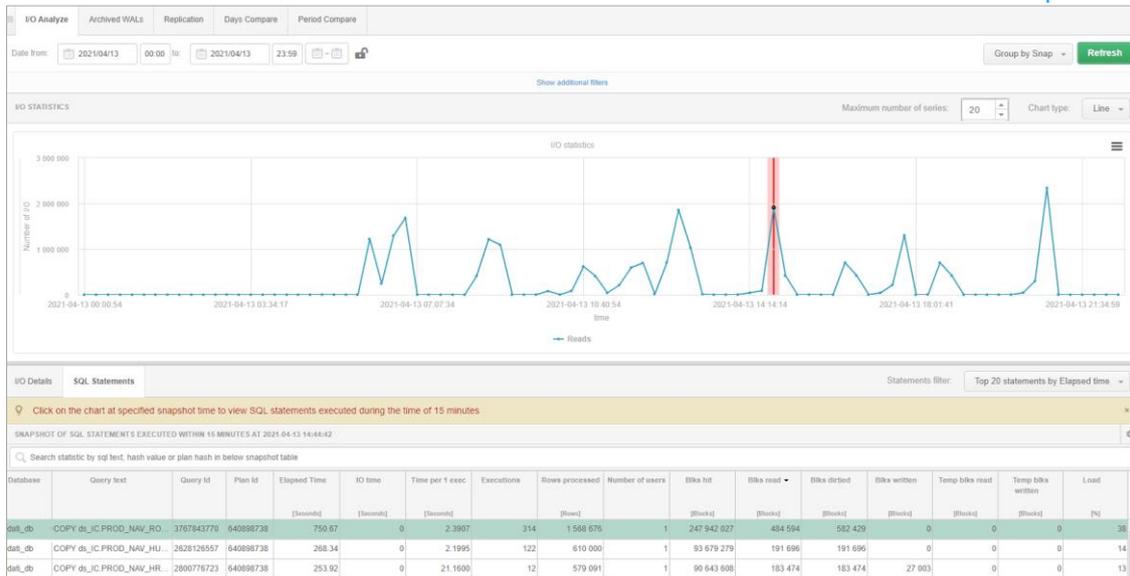


Additionally, the latest version offers the possibility of compiling multiple periods on one chart. By going to the **Compare Periods** tab, it is possible to verify the database performance for a given statistic. Several periods should be displayed at once.



### 1.2.2. I/O Stats with Sql Statements

In the DBPLUS application, disk array performance monitoring is available. This information is collected from the system views of the database as part of the snap procedure every 15 minutes and presented in the **I/O Stats - I/O Analyze** tab. By going to the SQL Statements tab, the User can easily connect whether the change in the disk array statistics is related to the query being executed at that time.



### 1.2.3. Performance reports with the option to print in \*.docx format

In the application, it is possible to generate a report (Performance report) which contains a list of top queries that operate in the monitored PostgreSQL instance. Depending on the selected scope, the report presents information about the queries that have the greatest impact on the database performance in the selected scope. Until now, the data was only available from the application level. From now on, the User can print the report in the \*.docx format and send it for analysis outside the DBPLUS application.

### 1.2.4. Quick selection of lines (Shift)

In the SQL Analyze screen, we added options to quickly select multiple rows in a table. Quick selection is available when User selects the first row in a group, then selects the last row with the SHIFT button pressed.

### 1.2.5. Additional filters search session history

The session history screen has the option to search sessions with Show additional filters. In the latest version, we have added the ability to search by the User column.

Logdate	PId	Query Id	User	Statement	Database	Application	Status	Wait type	Wait	Elapsed Time	Query Start	Transaction Start	Blocking PId
2021-04-12 00:00:52	8048		postgres	select proname, oid	belladati_db	pg_dump	idle in trans.	Client	ClientRead	752	2021/04/11 23:48:19	2021/04/11 23:30:07	
2021-04-12 00:01:53	8048		postgres	select proname, oid	belladati_db	pg_dump	idle in trans.	Client	ClientRead	813	2021/04/11 23:48:19	2021/04/11 23:30:07	
2021-04-12 00:02:54	8048		postgres	select proname, oid	belladati_db	pg_dump	idle in trans.	Client	ClientRead	874	2021/04/11 23:48:19	2021/04/11 23:30:07	
2021-04-12 00:03:55	8048		postgres	select proname, oid	belladati_db	pg_dump	fastpath fun.	Client	ClientRead	935	2021/04/11 23:48:19	2021/04/11 23:30:07	
2021-04-12 00:04:56	8048		postgres	select proname, oid	belladati_db	pg_dump	idle in trans.	Client	ClientRead	996	2021/04/11 23:48:19	2021/04/11 23:30:07	
2021-04-12 00:05:57	8048		postgres	select proname, oid	belladati_db	pg_dump	idle in trans.	Client	ClientRead	1 057	2021/04/11 23:48:19	2021/04/11 23:30:07	
2021-04-12 00:06:58	8048		postgres	select proname, oid	belladati_db	pg_dump	idle in trans.	Client	ClientRead	1 118	2021/04/11 23:48:19	2021/04/11 23:30:07	

### 1.2.6. Locks export

If the User wants to send information about blockades, he must indicate the point on the chart where there were blockades. Then, after clicking the right button on the mouse, an option about the possible export of locks will be displayed. The export is performed to a file in the \*.csv format.

List of locked sessions at snapshot time: 2021-04-13 09:23:26	
Session Id: 54 Session status: running Command: UPDATE Last Request Runtime: 757 s Last Request Start Time: 2021-04-13 09:10:49 Transaction Begin Time: 2021-04-13 09:14:15 Username: ICicrm Hostname: CRM Database: MSCRM Program: SQLAgent - TSQL JobStep (Job Rn0AB3A6029E714C9E17705452EF664C : Step 46)	
Session Id: 515 Session status: running Wait: LCK_M_IX Command: UPDATE Last Request Runtime: 317 s Last Request Start Time: 2021-04-13 09:18:01 Username: crm_jisinter Hostname: CRMIS32.w3wp.7200.443 Database: MSCRM Program: MSCRMw3wp	<div style="border: 1px solid red; padding: 2px;">           Locks tree options            Export tree         </div>
Session Id: 60 Session status: running Wait: LCK_M_IX Command: UPDATE Last Request Runtime: 291 s Last Request Start Time: 2021-04-13 09:13:09 Username: crm_jisinter Hostname: CRMIS32.w3wp.7200.443 Database: MSCRM Program: MSCRMw3wp	

### ***1.2.7. End of support for the old version of Dashboard***

In version 2021.1, we ended support for the "old" Dashboard. This screen will no longer be expanded and will be replaced by the current Dashboard screen allowing the User to simultaneously analyze all available platforms. The link that points to the old Dashboard has been redirected.