DBPLUS better performance

DBPLUS
Performance Monitor for Oracle
description of changes in version 2021.4

Date: December 31, 2021

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Below is a list of changes to the DBPLUS Performance Monitor system for Oracle database monitoring.

New in 2021.4

1   REST API – Performance Monitor

In the latest version of the application, we have added new methods to the REST API:
- get information about Outage,
- Outage management,
- Management of DBPLUS instance monitoring.

1.1. REST API call

To call a method for a given platform, the appropriate method must be completed in the link that calls the REST API. For example, below is calling the outages method for the Oracle platform. For example, below is calling the *outages* method for the Oracle platform. An example of calling a method:
https://hostname/DPMOracle.RestApi/outages

Due to the use of the POST method for managing monitoring instances, it is recommended to use the *https* protocol for the DBPLUS Performance Monitor application (applies to the application itself as well as the Rest API) and to use additional authorization using the *Security Token* available in the DBPLUS Rest API configuration.

1.2. REST API DBPLUS calling methods

1.2.1.   Get information about Outage

Method	GET
Database platform	PostgreSQL, Oracle, MS SQL
URL	/outages
Action	Getting information about temporary instance exclusions from DBPLUS monitoring

Input data: missing

Output data:

OutageList	Outage list
OutageRecord	Outage detaild
OutageId	Outage ID
ServerId	Server ID in the DBPLUS repository
Enabled	Outage status
DateFrom	The date from Outage is effective. Format [YYYY:MM:DD]
DateTo	The date to Outage is effective. Format [YYYY:MM:DD]
TimeFrom	Time from Outage is effective. Format [hh:mm]
TimeTo	Time to Outage is effective. Format [hh:mm]
Description	Description
Monday	The day of the week that Outage is activated: ▪ true ▪ false
Tuesday	The day of the week that Outage is activated: ▪ true ▪ false
Wednesday	The day of the week that Outage is activated: ▪ true ▪ false
Thursday	The day of the week that Outage is activated: ▪ true ▪ false
Friday	The day of the week that Outage is activated:

	▪ true
	▪ false
Saturday	The day of the week that Outage is activated:
	▪ true
	▪ false
Sunday	The day of the week that Outage is enabled:
	▪ true
	▪ false

Example [xml]:

```xml
<Root>
    <OutageList>
        <OutageRecord>
            <OutageId>7</OutageId>
            <ServerId>16</ServerId>
            <Enabled>true</Enabled>
            <DateFrom>2021-12-13</DateFrom>
            <DateTo>2021-12-21</DateTo>
            <TimeFrom />
            <TimeTo />
            <Description> Scheduledwork</Description>
            <Monday>false</Monday>
            <Tuesday>true</Tuesday>
            <Wednesday>false</Wednesday>
            <Thursday>true</Thursday>
            <Friday>false</Friday>
            <Saturday>true</Saturday>
            <Sunday>false</Sunday>
        </OutageRecord>
        <OutageRecord>
            <OutageId>8</OutageId>
            <ServerId>14</ServerId>
            <Enabled>true</Enabled>
            <DateFrom />
            <DateTo />
            <TimeFrom />
            <TimeTo />
            <Description> Scheduledwork</Description>
            <Monday>true</Monday>
            <Tuesday>true</Tuesday>
            <Wednesday>true</Wednesday>
            <Thursday>true</Thursday>
            <Friday>true</Friday>
            <Saturday>true</Saturday>
            <Sunday>true</Sunday>
        </OutageRecord>
    </OutageList>
</Root>
```

Example [JSON]:

```json
{"OutageList":[{"OutageId":7,"ServerId":16,"Enabled":true,"DateFrom":"2021-12-13","DateTo":"2021-12-21","TimeFrom":"","TimeTo":"","Description":"Test cut-off","Monday":false,"Tuesday":true,"Wednesday":false,"Thursday":true,"Friday":false,"Saturday":true,"Sunday":false},{"OutageId":8,"ServerId":14,"Enabled":true,"DateFrom":"","DateTo":"","TimeFrom":"","TimeTo":"","Description":"Scheduledwork","Monday":true,"Tuesday":true,"Wednesday":true,"Thursday":true,"Friday":true,"Sa
```

```
turday":true,"Sunday":true}]}
```

1.2.2. Outage management

Method	POST
Database platform	PostgreSQL, Oracle, MS SQL
URL	/outagemanage
Action	Outage management. It allows to set up, modify or remove a temporary exclusion of a given instance from monitoring

Input data:

Action	Action To Do: ▪ insert ▪ update ▪ delete
OutageId	Outage ID * value ignored for "insert" action
ServerId	Server ID in the DBPLUS repository * value ignored in the case of "update", "delete" actions
Enabled	Outage Status: ▪ true ▪ false
DateFrom	The date from Outage is effective. Format [YYYY:MM:DD]
DateTo	The date to Outage is effective. Format [YYYY:MM:DD]
TimeFrom	Time from Outage is effective. Format [hh:mm]
TimeTo	Time to Outage is effective. Format [hh:mm]
Description	Description
Monday	The day of the week that Outage is activated: ▪ true ▪ false
Tuesday	The day of the week that Outage is activated: ▪ true ▪ false
Wednesday	The day of the week that Outage is activated: ▪ true ▪ false
Thursday	The day of the week that Outage is activated: ▪ true ▪ false
Friday	The day of the week that Outage is activated: ▪ true ▪ false
Saturday	The day of the week that Outage is activated: ▪ true ▪ false
Sunday	The day of the week that Outage is activated: ▪ true ▪ false

Output data:

Action	Action performed: ▪ insert ▪ update ▪ delete
Response	Response record
Status	Reply status: ▪ OK ▪ ERROR

Message	Error Messager * completed value for Status = ERROR
OutageId	Outage ID * value ignored for "insert" action
ServerId	Server ID in the DBPLUS repository * value ignored in the case of "update", "delete" actions
Enabled	Outage status
DateFrom	The date from Outage is effective. Format [YYYY:MM:DD]
DateTo	The date to Outage is effective. Format [YYYY:MM:DD]
TimeFrom	Time from Outage is effective. Format [hh:mm]
TimeTo	Time to Outage is effective. Format [hh:mm]
Description	Description
Monday	The day of the week that Outage is activated: ▪ true ▪ false
Tuesday	The day of the week that Outage is activated: ▪ true ▪ false
Wednesday	The day of the week that Outage is activated: ▪ true ▪ false
Thursday	The day of the week that Outage is activated: ▪ true ▪ false
Friday	The day of the week that Outage is activated: ▪ true ▪ false
Saturday	The day of the week that Outage is activated: ▪ true ▪ false
Sunday	The day of the week that Outage is activated: ▪ true ▪ false

Delete Outage scenario.
Example [xml] input data:

```xml
<Root>
<Action>delete</Action>
<OutageId>20</OutageId>
<ServerId>16</ServerId>
<Enabled>true</Enabled>
<DateFrom>2021-12-13</DateFrom>
<DateTo>2021-12-18</DateTo>
<TimeFrom/>
<TimeTo/>
<Description>Planned change</Description>
<Monday>true</Monday>
<Tuesday>true</Tuesday>
<Wednesday>true</Wednesday>
<Thursday>true</Thursday>
<Friday>true</Friday>
<Saturday>true</Saturday>
<Sunday>true</Sunday>
</Root>
```

Example [xml] the output data:

```xml
<Root>
```

```xml
        <OutageId>20</OutageId>
        <ServerId>16</ServerId>
        <Enabled>true</Enabled>
        <DateFrom>2021-12-13</DateFrom>
        <DateTo>2021-12-18</DateTo>
        <TimeFrom />
        <TimeTo />
        <Description>Planned change</Description>
        <Monday>true</Monday>
        <Tuesday>true</Tuesday>
        <Wednesday>true</Wednesday>
        <Thursday>true</Thursday>
        <Friday>true</Friday>
        <Saturday>true</Saturday>
        <Sunday>true</Sunday>
        <Action>delete</Action>
        <Response>
            <Status>OK</Status>
            <Message />
        </Response>
</Root>
```

Create Outage scenario.
Example [JSON] – input data:

```json
{
    "action": "insert",
    "outageId": ,
    "serverId": 16,
    "enabled": true,
    "dateFrom": "2021-12-20",
    "dateTo": "2021-12-23",
    "timeFrom": "11:20",
    "timeTo": "12:20",
    "description": "Scheduled work",
    "monday": true,
    "tuesday": true,
    "wednesday": true,
    "thursday": true,
    "friday": true,
    "saturday": true,
    "sunday": true
}
```

Example [JSON] – the output data:

```json
{
    "action": "insert",
    "response": {
        "status": "OK",
        "message": ""
    },
    "outageId": 12,
    "serverId": 16,
    "enabled": true,
    "dateFrom": "2021-12-20",
    "dateTo": "2021-12-23",
    "timeFrom": "11:20",
```

```
    "timeTo": "12:20",
    "description": "Scheduled work",
    "monday": true,
    "tuesday": true,
    "wednesday": true,
    "thursday": true,
    "friday": true,
    "saturday": true,
    "sunday": true
}
```

1.2.3. Managing the monitoring of instances in DBPLUS

Method	POST
Database platform	PostgreSQL, Oracle
URL	/instancemanage
Action	Managing the monitoring of instances in DBPLUS. It allows to add or remove an instance from DBPLUS monitoring.

Input data:

Action	Action to do: ▪ insert ▪ delete
ServerId	Internal identifier of PostgreSQL instance in DBPLUS repository * value ignored for "insert" action
SSLMode	SSL Mode connection: ▪ 0= Disable ▪ 1= Prefer ▪ 2= Require * value provided for Postgres version only
TrustSelfSignedSSLCerts	Trust self-signed certificates ▪ true ▪ false *value provided for Postgres version only
ConnectionType	Connection type: ▪ basic ▪ TNS *value provided for Oracle version only
HostName	Host name or IP
ConnectionName	Connection name *value provided for Postgres version only
DefaultDatabase	Default database *value provided for Postgres version only
Sid	Database identifier *value provided for Oracle version only
ServiceName	Service Name *value provided for Oracle version only
UseMonitoringUserOnly	Connect with existing user *value provided for Oracle version only
TCPPort	Port
UserMonitoring	Monitoring user data
UserName	User name
Password	Password
InternalAuthentication	Domain Authorization
DBARole	SYSDBA role: ▪ true ▪ false *value provided for Oracle version only
CreateUser	Create new monitoring user:

	▪ true
	▪ false
UserAdmin	User Admin data
UserName	User name
Password	Password
InternalAuthentication	Domain Authorization
DBARole	SYSDBA role: ▪ true ▪ false *value provided for Oracle version only
UserMonitoringTablespace	Monitoring user Tablespace *value provided for Oracle version only
UserMonitoringTempTablespace	Monitoring user Temp Tablespace *value provided for Oracle version only
UserMonitoringProfile	Monitoring user Profile *value provided for Oracle version only

Output data:

Response	Response record
Status	Status: ▪ OK ▪ ERROR
Message	Error Message *value provided for Status=ERROR only
Action	Action to do: ▪ insert ▪ **delete**
ServerId	Internal identifier of PostgreSQL instance in DBPLUS repository * value ignored for "insert" action
SSLMode	SSL Mode connection: ▪ 0= Disable ▪ 1= Prefer ▪ 2= Require * value provided for Postgres version only
TrustSelfSignedSSLCerts	Trust self-signed certificates ▪ true ▪ false *value provided for Postgres version only
ConnectionType	Connection type: ▪ basic ▪ TNS *value provided for Oracle version only
HostName	Host name or IP
ConnectionName	Connection name *value provided for Postgres version only
DefaultDatabase	Default database *value provided for Postgres version only
Sid	Database identifier *value provided for Oracle version only
ServiceName	Service Name *value provided for Oracle version only
UseMonitoringUserOnly	Connect with existing user *value provided for Oracle version only
TCPPort	Port
UserMonitoring	Monitoring user data
UserName	User name
Password	Password
InternalAuthentication	Domain Authorization

DBARole	SYSDBA role: ▪ true ▪ false *value provided for Oracle version only
CreateUser	Create new monitoring user: ▪ true ▪ false
UserAdmin	User Admin data
UserName	User name
Password	Password
InternalAuthentication	Domain Authorization
DBARole	SYSDBA role: ▪ true ▪ false *value provided for Oracle version only
UserMonitoringTablespace	Monitoring user Tablespace *value provided for Oracle version only
UserMonitoringTempTablespace	Monitoring user Temp Tablespace *value provided for Oracle version only
UserMonitoringProfile	Monitoring user Profile *value provided for Oracle version only

Scenario for adding a Oracle instance with creating a monitoring user.
Example [xml] input data:

```xml
<Root>
    <Action>insert</Action>
    <HostName>192.168.1.120</HostName>
    <ConnectionType>basic</ConnectionType>
    <TCPPort>1522</TCPPort>
    <Sid>TERRAN</Sid>
    <CreateUser>true</CreateUser>
    <UserMonitoring>
        <UserName>DBMON</UserName>
        <Password>pass</Password>
    </UserMonitoring>
    <UserAdmin>
        <InternalAuthentication>false</InternalAuthentication>
        <UserName>sys</UserName>
        <Password>syspasss</Password>
        <DBARole>true</DBARole>
    </UserAdmin>
     <UseMonitoringUserOnly>false</UseMonitoringUserOnly>
     <UserMonitoringTablespace>USERS</UserMonitoringTablespace>
     <UserMonitoringProfile>DEFAULT</UserMonitoringProfile>
     <UserMonitoringTempTablespace>TEMP</UserMonitoringTempTablespace>
    </Root>
```

Example [xml] output data:

```xml
<Root>
    <Action>insert</Action>
    <Response>
        <Status>OK</Status>
        <Message />
    </Response>
    <ServerId>1</ServerId>
    <HostName>192.168.1.120</HostName>
```

```xml
    <TCPPort>1522</TCPPort>
    <UserAdmin>
        <InternalAuthentication>false</InternalAuthentication>
        <UserName>sys</UserName>
        <Password>syspass</Password>
        <DBARole>true</DBARole>
    </UserAdmin>
    <CreateUser>true</CreateUser>
    <UserMonitoring>
        <InternalAuthentication>true</InternalAuthentication>
        <UserName>DBMON</UserName>
        <Password>pass</Password>
        <DBARole>false</DBARole>
    </UserMonitoring>
    <Sid>TERRAN</Sid>
    <ConnectionType>basic</ConnectionType>
    <UseMonitoringUserOnly>false</UseMonitoringUserOnly>
    <UserMonitoringProfile>DEFAULT</UserMonitoringProfile>
    <UserMonitoringTablespace>USERS</UserMonitoringTablespace>
    <UserMonitoringTempTablespace>TEMP</UserMonitoringTempTablespace>
</Root>
```

Scenario for adding a Oracle instance with existing monitoring user.
Example [xml] input data:

```xml
<Root>
    <Action>insert</Action>
    <HostName>192.168.1.120</HostName>
    <ConnectionType>basic</ConnectionType>
    <TCPPort>1522</TCPPort>
    <Sid>TERRAN</Sid>
    <CreateUser>false</CreateUser>
    <UserMonitoring>
        <UserName>DB_MON</UserName>
        <Password>pass</Password>
    </UserMonitoring>
     <UseMonitoringUserOnly>true</UseMonitoringUserOnly>
    </Root>
```

Scenario for adding a Oracle instance with existing monitoring user with TNS connection type.
Example [xml] input data:

```xml
<Root>
    <Action>insert</Action>
    <ConnectionType>TNS</ConnectionType>
    <Sid>TERRAN</Sid>
    <CreateUser>false</CreateUser>
    <UserMonitoring>
        <UserName>DB_MON</UserName>
        <Password>pass</Password>
    </UserMonitoring>
     <UseMonitoringUserOnly>true</UseMonitoringUserOnly>
</Root>
```

Scenario of removing an instance from monitoring.
Example [xml] input data:

```xml
<Root>
```

```xml
    <Action>delete</Action>
    <ServerId>21</ServerId>
</Root>
```

Example [xml] output data:

```xml
<Root>
    <Action>delete</Action>
    <Response>
        <Status>OK</Status>
        <Message />
    </Response>
    <ServerId>21</ServerId>
    <TCPPort>0</TCPPort>
    <CreateUser>false</CreateUser>
    <UseMonitoringUserOnly>false</UseMonitoringUserOnly>
</Root>
```

2   Adding additional information to the query statistics

In the latest version of the application, we have added additional information to the query statistics, including the name of the action that was performed during the first analysis of the SQL statement by the Oracle engine for a given query. This information makes it possible to better identify the source from the query comes. No information in the Action column means that there is no such information stored in the Oracle system view. This data is visible on the SQL Details - Query Details screen.

Information about the *action* has also been added in the Sessions screen and in the session history.

3   Improvements to the lock screen

The presentation of locks on **the Locks** screen at the Oracle database detail level has been improved in the latest version of the application. The change concerns the mechanism of indicating the session causing the lock. In a situation where one session made changes to many objects (tables) in the database and at the same time was blocked by other sessions, there were scenarios where the list of blocked sessions shows twice. The problem has been corrected in the latest version.

Another change concerns the additional marking in the "tree" which sessions cause blockades (BLOCKERS), and which ones are blocked (WAITERS). The change will make it easier to determine the cause of the lock problem for a given instance.

List of locked sessions at snapshot time: 2021/12/22 16:58:37

- BLOCKER SID: 45756 Serial#: 7643 Session status: INACTIVE Lock Type: TM (DML enqueue lock) BLOCK time (sec.): 2481 User Name: MKARPIN2_INTER (Os User: oracle) Machine: forms Module: SAFO2000
- BLOCKER SID: 37878 Serial#: 16877 Session status: INACTIVE Lock Type: TX (Transaction enqueue lock) BLOCK time (sec.): 1820 User Name: LWIKTORS_INTER (Os User: oracle) Machine: forms Module: KH_KH_MS
  - BLOCKER WAITER SID: 55665 Serial#: 27281 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 1698 User Name: INTER (Os User: iis_user) Machine: WORKGROUP\PROD-IGO-03 Module: w3wp.exe
    - WAITER SID: 19755 Serial#: 11749 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 24 User Name: INTER (Os User: iis_user) Machine: WORKGROUP\PROD-IGO-02 Module: w3wp.exe
      - WAITER SID: 13699 Serial#: 18819 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 974 User Name: INTER (Os User: iis_user) Machine: WORKGROUP\PROD-IGO-04 Module: w3wp.exe
      - WAITER SID: 17469 Serial#: 48683 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 1485 User Name: INTER (Os User: iis_user) Machine: WORKGROUP\PROD-IGO-02 Module: w3wp.exe

SQL STATEMENT FOR SESSION SID: 55665

`UPDATE KH SET ASY = :B2 WHERE KOD = :B1`

An additional change is adding information about the number of blocked sessions. After selecting a given blocking session, information on the number of blocked sessions will be displayed in the details.

List of locked sessions at snapshot time: 2021/12/22 16:50:06

- BLOCKER SID: 45756 Serial#: 7643 Session status: INACTIVE Lock Type: TM (DML enqueue lock) BLOCK time (sec.): 1970 User Name: MKARPI (Os User: oracle) Machine: forms Module: SAFO2000
  - WAITER SID: 24840 Serial#: 12657 Session status: ACTIVE Lock Type: TM (DML enqueue lock) WAIT time (sec.): 263 User Name: KROZY(Os User: oracle) Machine: forms Module: KH
  - WAITER SID: 49777 Serial#: 45977 Session status: ACTIVE Lock Type: TM (DML enqueue lock) WAIT time (sec.): 433 User Name: AMUSZY(Os User: oracle) Machine: forms Module: SAFO20
  - WAITER SID: 10785 Serial#: 11131 Session status: ACTIVE Lock Type: TM (DML enqueue lock) WAIT time (sec.): 34 User Name: KWOLUJ(Os User: radio) Machine: mtermit08 Module: Sledzenie
  - WAITER SID: 28933 Serial#: 23073 Session status: ACTIVE Lock Type: TM (DML enqueue lock) WAIT time (sec.): 569 User Name: NKOCZ (Os User: radio) Machine: mtermit08 Module: Sledzenie
  - WAITER SID: 40942 Serial#: 22245 Session status: ACTIVE Lock Type: TM (DML enqueue lock) WAIT time (sec.): 322 User Name: ASZRAM(Os User: radio) Machine: mtermit07 Module: Sledzenie
  - WAITER SID: 6327 Serial#: 7337 Session status: ACTIVE Lock Type: TM (DML enqueue lock) WAIT time (sec.): 1772 User Name: KPANKIE (Os User: radio) Machine: mtermit01 Module: Sledzenie

SQL STATEMENT FOR SESSION SID: 45756

`INSERT INTO ESB_TRA_R(ESB_TRA_ID, ESB_TRA_CFG_ID, DAT_R) VALUES (:B3 , :B2 , SYSDATE+ ((1/24/60/60)*:B1 ))`

SESSION DETAILS		LOCK DETAILS
Number of blocked sessions	88	**Description:**
Request	0	A high level of this event indicates that there are restrictions on unindexed foreign keys. This happens when a dependent or child table constraint that references a parent table is missing an index on the associated key. Oracle acquires a table lock on a child table if it modifications on the primary key column in the parent table that's referenced by the foreign key of the child table.
Sid	45756	**Solution:**
LockType	TM	You need to create an index in the child table performing on the column that references the parent table.
LockTypeDescription	(DML enqueue lock)	**Create the missing indexes** with the script below to solve the **enq: TM – contention** wait problem:
ID1	6993083	`CREATE UNIQUE INDEX "IDX_DOK_CMR_KH_KOD_MP" ON "DOK_CMR" ("KH_KOD_MP");`
ID2	0	
Lmode	3	

Another change is related to the description of the lock type for the session. The description appears in the new Lock Details section after clicking on a row on the lock screen.

List of locked sessions at snapshot time: 2021/12/23 02:59:24

- BLOCKER SID: 29935 Serial#: 26575 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) BLOCK time (sec.): 34 User Name: HZAJO (Os User: oracle) Machine: g5scuti Module: WMS4PLC_TOTE#HZA
  - WAITER SID: 31123 Serial#: 7513 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 13 User Name: MMELNY(Os User: radio) Machine: mtermit04 Module: Zbiorka List Kompletacyjnych - 3SN1
  - WAITER SID: 60864 Serial#: 6509 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 4 User Name: JGATACIL(Os User: radio) Machine: mtermit03 Module: Zbiorka List Kompletacyjnych - 3SN1
  - WAITER SID: 9124 Serial#: 16973 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 2 User Name: VLUTSY(Os User: radio) Machine: mtermit01 Module: Zbiorka List Kompletacyjnych - 0UX2
  - WAITER SID: 37547 Serial#: 14963 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 11 User Name: MCOTOFA(Os User: radio) Machine: mtermit08 Module: Zbiorka List Kompletacyjnych - 0UX2
  - WAITER SID: 24331 Serial#: 18993 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 4 User Name: ALORENZ (Os User: radio) Machine: mtermit04 Module: Zbiorka List Kompletacyjnych - 2N1
  - WAITER SID: 5227 Serial#: 7521 Session status: ACTIVE Lock Type: TX (Transaction enqueue lock) WAIT time (sec.): 3 User Name: OZADNIPI(Os User: radio) Machine: mtermit04 Module: Zbiorka List Kompletacyjnych - 3Q1

SQL STATEMENT FOR SESSION SID: 29935

`select biz_atr_w.war from biz_atr_w, kh_biz_atr_w where biz_atr_w.id = kh_biz_atr_w.biz_atr_w_id and biz_atr_w.biz_atr_1_atr_id = :"SYS_B_0" and biz_atr_w.biz_atr_1_kod = :"SYS_B_1" and kh_biz_atr_w.kh_ko = :"SYS_B_2"`

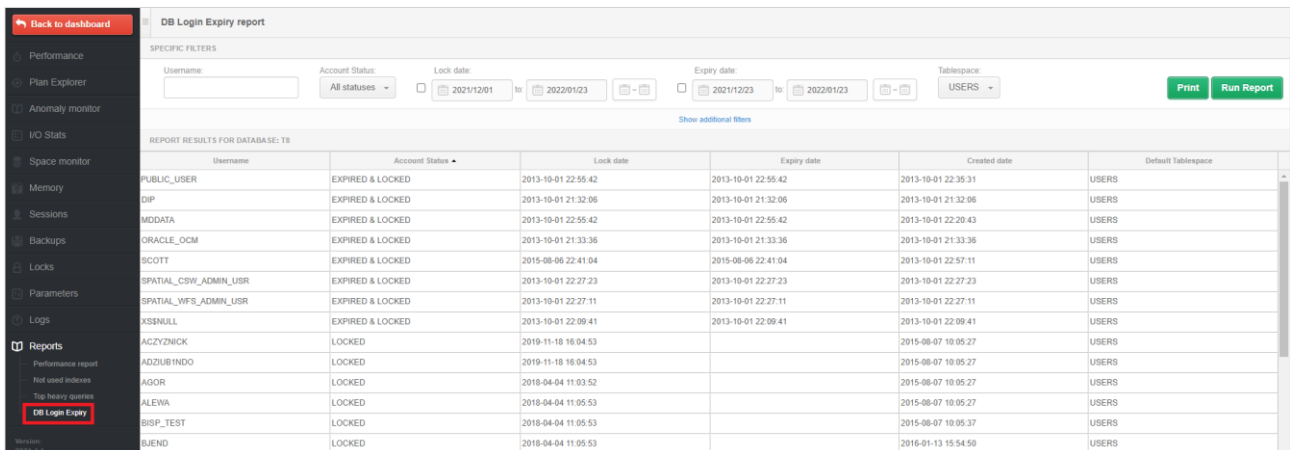| SESSION DETAILS		LOCK DETAILS
Number of blocked sessions	13	**Lock Type:**
Request	0	TX
Sid	29935	**Lock Name:**
LockType	TX	Transaction
LockTypeDescription	(Transaction enqueue lock)	**Description:**
ID1	626458655	A TX lock (also called a row lock), is a lock on a single row of table. A transaction acquires a row lock for each row modified by an INSERT, UPDATE, DELETE, MERGE, or SELECT ... FOR UPDATE statement. Row locks primarily serve as a queuing mechanism to prevent two transactions from modifying the same row. The database always locks a modified row in exclusive mode so that other transactions cannot modify the row until the transaction holding the lock commits or rolls back.
ID2	913363	
Lmode	6	

4 Monitoring of expiring access

In the latest version of the application, we have added a new report that contains information about the status of database users in the monitored database. The report is available from the level of details of a given database in the *Reports> DB Login Expiry menu.*
Before executing the report, the user can complete available filters, such as:

- Username
- Account Status
- Lock date
- Expiry date

- Tablespace

Information on the status of accounts after the DBPLUS application is displayed on the screen can be saved in the form of a * .docx file (after clicking the Print button) or in the * .csv format after clicking Export grid from the level of the table with the results.

Status data is not saved in the DPBLUS repository database. Running the report is performed online directly on the monitored database.

Notice! If the Security authorization option is enabled in a given application, the report will not be visible in the menu by default. In order to activate the report option, you must additionally select such option in the Security menu.
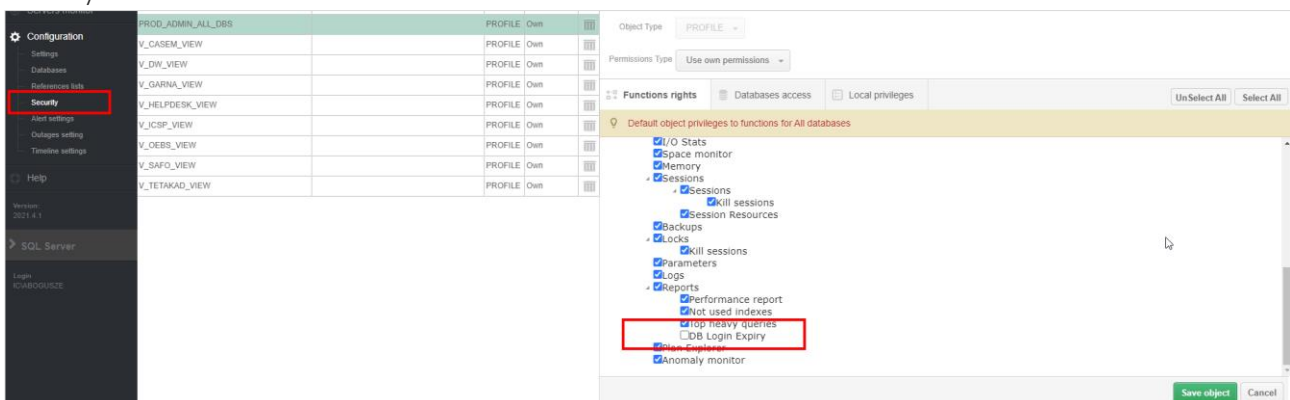
5 Bug fixes and improvements

5.1. Fixed a bug related to IIS at the Configuration Wizard level

In the latest version of the application, we have corrected the problem related to displaying the IIS error at the Configuration Wizard level. The issue was with the message: *"The underlying connection was closed: An unexpected error occurred on a receive."*. The problem has been fixed, the message should not appear in the latest version.

5.2. Redundant entries in Outline, BaseLine and Profiles history

In the new version of the application, we have improved the mechanism of saving changes related to Outline, Baseline and Profiles objects to the DBPLUS repository. In previous versions, in some databases, there was a scenario of adding redundant rows to the revision history for a given object. In the latest version, we have improved the mechanism of saving changes to the above objects.

5.3. Marking the columns used in the query

In the latest version, we have added a function that allows faster query performance analysis on the Show Plan Objects screen. The change consists in additional marking the columns used in the query in the grid. The change is visible on the screen in the form of an additional column Used in query, which is displayed after the Parse SQL Query operation is performed.

SQL TEXT (HASH VALUE: 848242916) | Objects Explorer | Parse SQL Query ✔ | ⚙ | EXPLAIN PLAN (PLAN HASH: 1632305314) | ✖ Close Plan Objects

```
UPDATE HR.departments
SET    department_name='ZZZZ'
```

```
─Owner: HR
⊕─UPDATE STATEMENT ( Cost = 3 , Bytes = 0 , Cardinality = 0 , Search Columns = 0 )
    └─UPDATE DEPARTMENTS
        └─TABLE ACCESS (FULL) DEPARTMENTS ( Cost = 3 , Bytes = 324 , Cardinality = 27 , Search Columns = 0 )
```

OBJECTS USED IN EXPLAIN PLAN | INDEXES FOR SELECTED OBJECT HR.DEPARTMENTS

Type	Owner	Object Name	Owner	Name
TABLE	HR	DEPARTMENTS	HR	DEPT_ID_PK
			HR	DEPT_LOCATION_IX

Object columns | Query advisor | Details for TABLE HR.DEPARTMENTS | ☐ Load object properties (slower)

🔍 Search by column name

Used In Query ▾	Column ▲	Type	Length	Column Id	Unique values	Density	Last analyzed	Sample size
☐	DEPARTMENT_ID	NUMBER	22	1	27	0.03703704	2021-12-16 09:14:46	27
☑	DEPARTMENT_NAME	VARCHAR2	30	2	1	1.00000000	2021-12-16 09:14:46	27
☐	LOCATION_ID	NUMBER	22	4	7	0.14285714	2021-12-16 09:14:46	27
☐	MANAGER_ID	NUMBER	22	3	11	0.09090909	2021-12-16 09:14:46	11