



**DVC**  
DIGITAL VENTILATED CAGE

Release Note  
6.3.0

2<sup>nd</sup> May 2023



## INDEX

|      |  |    |
|------|--|----|
| 1    | NEW FEATURES.....  | 3  |
| 1.1  | FEATURE #1 – READER NOT CONNECTED SINCE LONG TIME.....                             | 3  |
| 1.2  | FEATURE #2 - RUNNING WHEEL ALARM.....  | 3  |
| 2    | ENHANCEMENTS.....  | 4  |
| 2.1  | ENHANCEMENT #1 - NEW READER ICONS ON THE DVC® OPERATOR<br>INTERFACE.....           | 4  |
| 2.2  | ENHANCEMENT # 2 – AMS CAGE NAME.....   | 6  |
| 2.3  | ENHANCEMENT # 3 – AMS NEW API.....   | 6  |
| 2.4  | ENHANCEMENT # 4 – RACKS ORDER IN USER INTERFACE.....                               | 6  |
| 2.5  | ENHANCEMENT # 5 – NO NWC FOR CAGE REGISTERED WITHOUT<br>ANIMALS.....               | 6  |
| 2.6  | ENHANCEMENT # 6 - % OF TIME WITH LIGHTS ON.....                                    | 7  |
| 2.7  | ENHANCEMENT # 7 – NOT CAGE MISSING IF RACK OFFLINE.....                            | 7  |
| 2.8  | ENHANCEMENT # 8 – SCORE IN NWC TASK TABLE.....                                     | 8  |
| 2.9  | ENHANCEMENT # 9 – DOUBLE DELIVERIES FOR BREEDING MODULE.....                       | 8  |
| 3    | BUG FIXES.....   | 9  |
| 3.1  | BUG FIX # 1 - CAGE NAME WITH SPACES.....   | 9  |
| 3.2  | BUG FIX # 2 – POLICY VIOLATED BANNER.....  | 9  |
| 3.3  | BUG FIX # 3 – CAGE TERMINATION AFTER WEANING / SPLIT.....                          | 10 |
| 3.4  | BUG FIX # 4 – BUTTON PLAY FOR DAILY TASK.....                                      | 10 |
| 3.5  | BUG FIX # 5 – BUTTON “AUTHORIZE” ELECTRONIC TOP HOLDER.....                        | 10 |
| 3.6  | BUG FIX # 6 - SPLIT GENERICAL ANIMALS ARE NOT APPEARING “MOVE<br>HERE BUTTON”..... | 11 |
| 3.7  | BUG FIX # 7 – REM OFFLINE IN THE WORKPLACE.....                                    | 11 |
| 3.8  | BUG FIX # 8 – READER STATUS NOT UPDATED IF SIGNAL IS LOST.....                     | 11 |
| 3.9  | BUG FIX # 9 - DAILY REPORT EMAIL FAILED.....                                       | 11 |
| 3.10 | BUG FIX # 10 – TASK REJECTED SHOWN ON TASK EXECUTION TABLE.....                    | 11 |
| 3.11 | BUG FIX # 11 – TOP HOLDER AND READERS KEEP ASSOCIATED AFTER<br>LOGOUT.....         | 12 |
| 3.12 | BUG FIX # 12 – UNEXPECTED ACTIVITY ALARM NOT CLOSED.....                           | 12 |
| 3.13 | BUG FIX # 13- REM CONFIGURATION NOT VISIBLE IN WORKPLACE<br>INTERFACE.....         | 12 |
| 3.14 | BUG FIX # 14 - DVC® READERS KEEP POSITION EVEN THOUGH PAGE<br>CHANGE.....          | 12 |
| 3.15 | BUG FIX # 15 – REM DATA LOST AFTER DISCONNECTION.....                              | 13 |
| 4    | KNOWN OPEN BUGS.....   | 13 |
| 4.1  | TOP HOLDER REVOKED.....  | 13 |



## RELEASE NOTE 6.3.0

### 1 NEW FEATURES

This DVC® release 6.3.0 includes some new features, several enhancements and bug fixings. Some of these new features have been developed considering new devices that have been officially released in production, such as the DVC® MASTERGUI and the ELECTRONIC TOP HOLDER.

#### 1.1 FEATURE #1 – READER NOT CONNECTED SINCE LONG TIME

In order to preserve the reader's battery and prevent possible blowing issues, a new alarm was added.

This alarm appears on the DVC Workplace and DVC Operator interface if the Reader is offline for xx days, where xx is configurable, by default, is set to **2 weeks**.



| Created on             | Solved on              | Equipment Serial |
|------------------------|------------------------|------------------|
| April 28, 2023 2:05 PM | April 28, 2023 2:05 PM | 2112             |

#### 1.2 FEATURE #2 - RUNNING WHEEL ALARM

For DVC® cages with Running Wheel as add-on, we've implemented a new Alarm on the DVC® OPERATOR interface. If the system is not receiving any data from the Running Wheel for 10 minutes, the alarm is raised.

Said alarm is going to be automatically closed whenever new data from the Running Wheel is received by the DVC® system, or the cage removed from the position.



| Created on             | Solved on | Cage ID  | Cage Position |
|------------------------|-----------|----------|---------------|
| April 28, 2023 2:53 PM |           | Cage-001 | F10           |

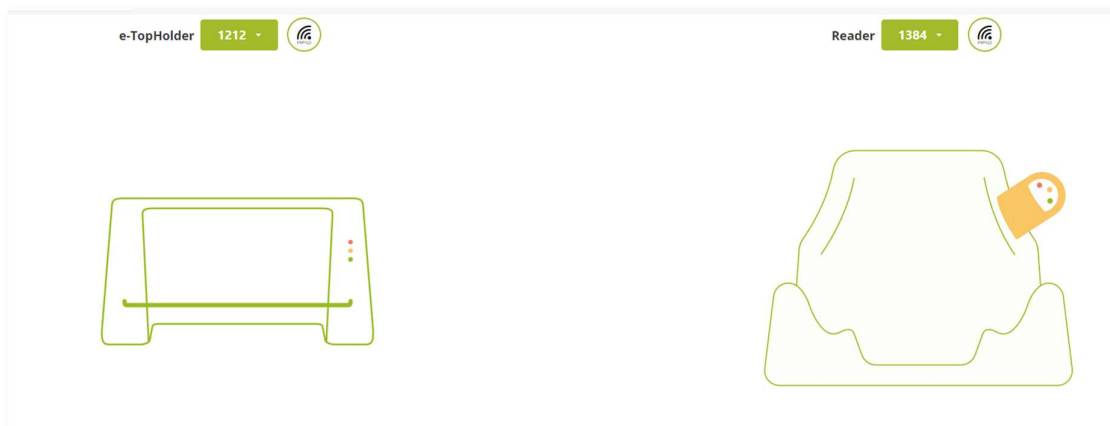


## 2 ENHANCEMENTS

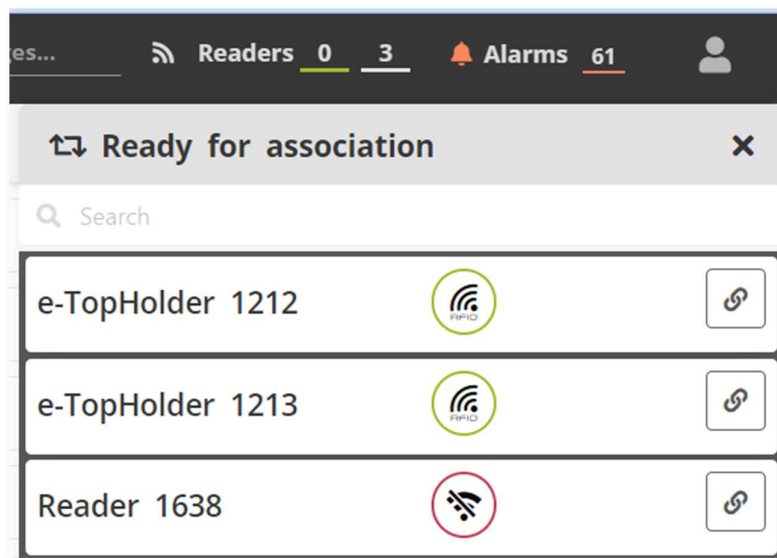
### 2.1 ENHANCEMENT #1 - NEW READER ICONS ON THE DVC® OPERATOR INTERFACE

In this release, we included new icons, as following:

- New icon for the Electronic Top Holder



- Search menu for the Reader association





- Readers ready for association are listed by following their statuses:

Reader Online  
Reader Sleeping Mode  
Reader Low Battery  
Reader Out of the Range

- Redesign some icons and labels of the Reader module.

The screenshot shows a mobile application interface with a dark header. The header contains a search bar with 'Cage ID' and a magnifying glass icon, followed by 'Search cages...'. To the right of the search bar are two status indicators: 'Readers 0 6' with a signal icon and 'Alarms 46' with a bell icon. A user profile icon is in the top right corner. A modal window titled 'Ready for association' is centered over the list, displaying six reader IDs: 1212, 1213, 1384, 1386, 1430, and 1638. Below the modal, a list of cages is visible, each with a green square icon containing a number and a label: '3 3 Racks', '4 4 Racks', '3 3 Racks', and '1 1 Racks'.

The screenshot shows the same mobile application interface as above, but the modal window is now titled 'Associated' and displays four reader IDs: 1212, 1213, 1384, and 1638. The list of cages below remains the same: '3 3 Racks', '4 4 Racks', '3 3 Racks', and '1 1 Racks'.



## 2.2 ENHANCEMENT # 2 – AMS CAGE NAME

From this release, the AMS (Animal Management System) provider's name is displayed on every cage (trimmed to 6 characters max, in the example below: "AMS-provider")

The screenshot shows a software interface for animal management. At the top, there's a header with 'STOCK B4-02-B6' and a button 'Insert mouse ID...'. Below that, a status bar shows '185' and 'ams name'. The main area displays a list of animals with the following details:

| Animal ID | Strain    | Date of birth | Cage parent |
|-----------|-----------|---------------|-------------|
| M2F-169   | MCT2 Flox | 12/10/2022    | N/A         |
| M2F-162   | MCT2 Flox | 12/10/2022    | N/A         |
| M2F-170   | MCT2 Flox | 12/10/2022    | N/A         |
| M2F-161   | MCT2 Flox | 12/10/2022    | N/A         |
| M2F-168   | MCT2 Flox | 12/10/2022    | N/A         |

## 2.3 ENHANCEMENT # 3 – AMS NEW API

New APIs have been developed to manage more workflows during the Integration with other Animal Management Systems. More in detail, new APIs covering the breeding events (delivery and weaning) as well as more APIs to integrate the DVC with AMS managing only Animal IDs (and not Cage IDs).

## 2.4 ENHANCEMENT # 4 – RACKS ORDER IN USER INTERFACE

From this release, the Rack View on the Operator Interface will appear by alphabetic order. This will avoid the order on the Rack view changes randomly.

## 2.5 ENHANCEMENT # 5 – NO NWC FOR CAGE REGISTERED WITHOUT ANIMALS

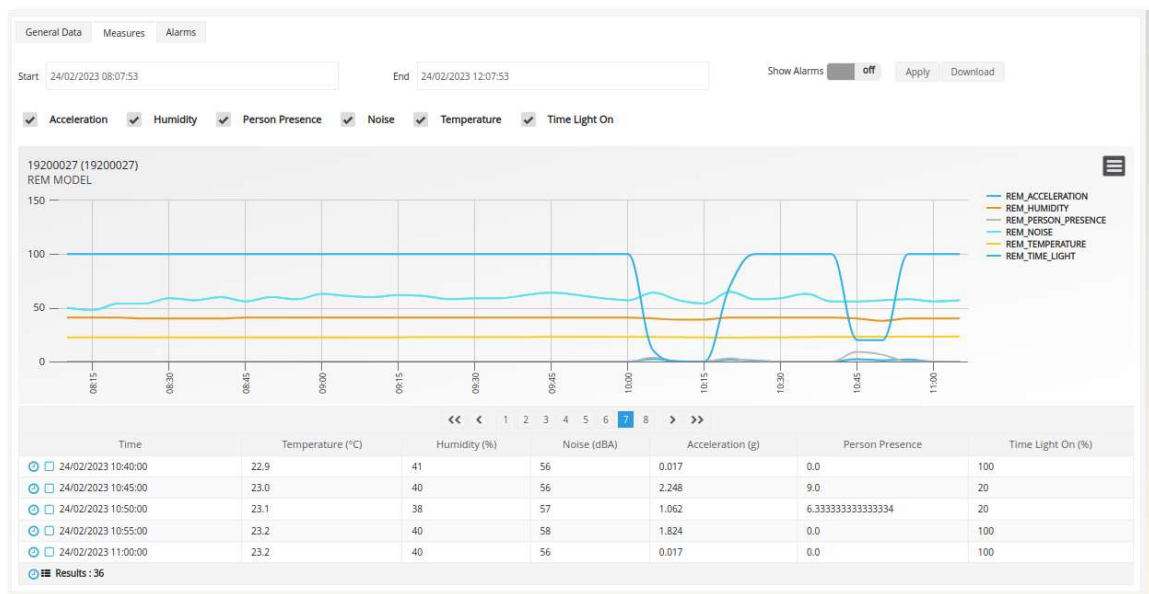
Cages registered with 0 (zero) animals on the Card Label will be not evaluated by the Night Welfare Check Algorithm and therefore no task will be raised for such cages.



## 2.6 ENHANCEMENT # 6 - % OF TIME WITH LIGHTS ON.

The REM light feature has been improved to provide a more understandable values regarding the light on time.

This metric can be found on the corresponding REM data page in the DVC<sup>®</sup> workplace interface. It indicates the % of time the Light was ON during a time interval.



Example:

On the above graph, the light was ON 20 % of the time between 24/02/2023 10:40:00 and 24/02/2023 10:45:00.

It means 20 % of 5 Minutes = 1 minute

## 2.7 ENHANCEMENT # 7 – NOT CAGE MISSING IF RACK OFFLINE

From this release onward, whenever a DVC<sup>®</sup> Rack goes offline, its cages will not be declared as missing as before. This enhancement is very convenient because it prevents the auto-termination of offline cages in case it was enabled.



## 2.8 ENHANCEMENT # 8 – SCORE IN NWC TASK TABLE

The NWC TABLE shows now more detailed information about the cage activities. Based on the algorithm's evaluations, the system will provide the following score: (Hyperactivity, Hypoactivity, No activity, and Unusual spatial activity).

| Cage Id | Position | Rack      | Evaluation               | Feedback | Status |
|---------|----------|-----------|--------------------------|----------|--------|
| cage-12 | D9       | 16002000A | Hiperactivity            |          | To do  |
| cage-1  | C6       | 16002000A | Hipoactivity             |          | To do  |
| cage-21 | A3       | 16002000A | No activity              |          | To do  |
| cage-2  | B3       | 16002000A | Hipoactivity             |          | To do  |
| cage-3  | B2       | 16002000A | Unusual Spatial Activity |          | To do  |

## 2.9 ENHANCEMENT # 9 – DOUBLE DELIVERIES FOR BREEDING MODULE

In case there are multiple deliveries added in a breeding cage (for instance in a trio), occurring in different days, the bedding change task will be scheduled considering the latest delivery.

More in detail, when the first delivery is added, the system stops generating bedding evaluations for a specific number of days. For instance 4. If, during these 4 days, a second delivery is added, this period is reset and another 4 days are considered before potentially creating a bedding change task.





### 3 BUG FIXES

This section refers to "user-visible" bugs that have been fixed by the current release. Some potential bug fixing refer to the overall infrastructure that is not here reported because "invisible" to the final user unless these are not critical bugs affecting the overall workflow.

#### 3.1 BUG FIX # 1 - CAGE NAME WITH SPACES

Cages registered with a cage ID containing blank spaces were not properly managed by the DVC<sup>®</sup> analytics and by the DVC<sup>®</sup> alarm service.

For instance: the "test cage" name as Cage ID was generating issues.

This bug has now been fixed. You can create cage IDs with blank spaces in between the words.

#### 3.2 BUG FIX # 2 – POLICY VIOLATED BANNER

Whenever a Partial Manual Task is selected, the system checks which is the policy (Total / Partial) declared for that cage, the system will eventually show a violation of said policy in case this is happening.



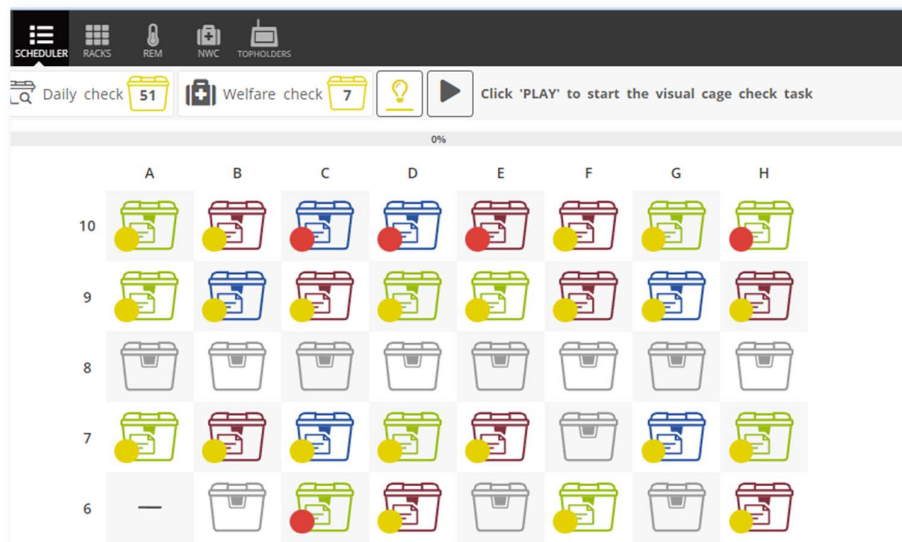


### 3.3 BUG FIX # 3 – CAGE TERMINATION AFTER WEANING / SPLIT

In the previous releases, during a Weaning Task, if the user modified the number of pups/mice after the cage top was removed from the reader, the system showed the cage termination banner, This bug has now been fixed.

### 3.4 BUG FIX # 4 – BUTTON PLAY FOR DAILY TASK

The “PLAY” button to start the Daily Check tasks was bugged by a Google Chrome browser (unexpected) update and it was not working anymore. This bug has now been fixed.



### 3.5 BUG FIX # 5 – BUTTON “AUTHORIZE” ELECTRONIC TOP HOLDER

The button “AUTHORIZE” from TOPHOLDERS MENU was not working. This bug has been fixed and the user is now able to manage the authorization of the Top Holders.

| Serial    | Name      | Status      | Online | Last Login        | Last Update      | Authorized By | Revoked By | Action    |
|-----------|-----------|-------------|--------|-------------------|------------------|---------------|------------|-----------|
| 22009002  | 22009002  | Disabled    | No     | 14/4/2023, 12:34  | 17/4/2023, 17:03 | Fmerino       | facility   | Revoke    |
| 22003989  | 22003989  | Authorizing | No     |                   | 17/4/2023, 17:09 |               |            | Authorize |
| 22003000  | 22003000  | Disabled    | No     | 29/11/2022, 16:37 | 2/12/2022, 10:25 | facility      | facility   | Revoke    |
| 200200027 | 200200027 | Disabled    | No     | 24/2/2023, 13:14  | 17/3/2023, 10:18 | Op3           | Fmerino    | Revoke    |
| 1         | 1         | Disabled    | No     | 1/12/2022, 11:21  | 17/3/2023, 10:18 | Fmerino       | Fmerino    | Revoke    |



### 3.6 BUG FIX # 6 - SPLIT GENERIC ANIMALS ARE NOT APPEARING "MOVE HERE BUTTON".

During a Split Task, if the target cage had already a General Animal registered in it, and the moving cage had a General Animal as well, the system didn't allow the animals to be moved. This bug has now been fixed.

### 3.7 BUG FIX # 7 - REM OFFLINE IN THE WORKPLACE.

Sometimes, the DVC REM was shown as offline in the DVC® Workplace even though it was online and collecting data. This bug has been fixed.

### 3.8 BUG FIX # 8 - READER STATUS NOT UPDATED IF SIGNAL IS LOST

Sometimes, when users were operating with a DVC® Reader that lost its signal while reading a cage, the status of the Reader was not updated, keeping visible the opened cage even if it was already closed. This bug has now been fixed.

### 3.9 BUG FIX # 9 - DAILY REPORT EMAIL FAILED

If a new DVC® account was created with an invalid email address, the rest of the users with a valid address would not receive the daily report emails anymore. This bug has now been fixed.

### 3.10 BUG FIX # 10 - TASK REJECTED SHOWN ON TASK EXECUTION TABLE

In the previous releases, the rejected tasks (Bedding Change and/or NWC.), were not visible on the Task Execution Table. This bug has been fixed.

The screenshot shows a software interface with a dark header bar containing a green network icon, a 'SCHEDULER' button, and a 'RACKS' button. Below the header is a task execution table. The table has a title bar with a back arrow, a refresh icon, the text 'Partial bedding change', two trash can icons with the number '1', a lightbulb icon, and the text 'Open the dirty cage'. The table itself has five columns: 'Cage Id', 'Position', 'Rack', 'Feedback', and 'Status'. There are two rows of data:

| Cage Id    | Position | Rack      | Feedback | Status        |
|------------|----------|-----------|----------|---------------|
| os5vibkcvk | N3       | 15348434B |          | Can't be done |
| z8aol0eyyz | L8       | 15348434B |          | To do         |



### 3.11 BUG FIX # 11 – TOP HOLDER AND READERS KEEP ASSOCIATED AFTER LOGOUT

In some scenarios, when the User logs out from the DVC® Operator Interface; the Electronic Top Holder and/or the DVC Readers kept associated. This bug has now been fixed.

### 3.12 BUG FIX # 12 – UNEXPECTED ACTIVITY ALARM NOT CLOSED

In the previous releases, if an unexpected activity alarm was closed, it was still visible on the alarm panel. This bug has now been fixed.

### 3.13 BUG FIX # 13- REM CONFIGURATION NOT VISIBLE IN WORKPLACE INTERFACE

The REM Configuration menu did not appear on the Facility Equipment Status (in the DVC® workplace interface). This bug has now been fixed.

| Elements                    | Status | Config. | REM Config. | Monitor | Actual Config. (AHU, REM) | Online | Model             |
|-----------------------------|--------|---------|-------------|---------|---------------------------|--------|-------------------|
| Not Localized               |        |         |             |         |                           |        |                   |
| TUgw_urdl                   | 🟢      | ▼       |             | 🔍 📄 📄   | POSITIVE                  | 🚨      | Smart Flow        |
| Main Building               |        |         | ▼           | 🔍       | REM_DEFAULT ( REM )       |        |                   |
| Main Floor                  |        |         | ▼           | 🔍       | REM_DEFAULT ( REM )       |        |                   |
| Main Room                   |        |         |             | 🔍       |                           |        |                   |
| Oxygen                      |        |         |             | 🔍       |                           |        |                   |
| Team FW                     |        |         |             | 🔍       |                           |        |                   |
| Team SW                     |        |         | ▼           | 🔍       | REM_DEFAULT ( REM )       |        |                   |
| staging-master02            | 🟢      |         |             | 🔍 📄     |                           |        | Master Base Model |
| aa                          | 🟢      |         |             | 🔍 📄     |                           |        | Rack Base Model   |
| BB                          | 🟢      |         |             | 🔍 📄     |                           |        | Rack Base Model   |
| 19200027                    | 🟢      |         | ▼           | 🔍 📄     | REM_DEFAULT               | 🔗      | REM model         |
| TUGatewayOnStagingMastger02 | 🟢      |         |             | 🔍 📄 📄   |                           | 🔗      | ISO Cage P        |
| Team Test                   |        |         |             | 🔍       |                           |        |                   |

Elapsed: 27 ms Results: 19

### 3.14 BUG FIX # 14 - DVC® READERS KEEP POSITION EVEN THOUGH PAGE CHANGE.

In the previous releases, whenever the operators change pages during a split or weaning manual tasks, the way of displaying the Readers (left-center-right) might change.

Now they are always kept in the same position even if the operator changes tasks.



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### 3.15 BUG FIX # 15 – REM DATA LOST AFTER DISCONNECTION

In the previous releases, if a Gateway Unit or a Wiflow unit with a REM associated to it, lost its connection to the server, in some cases, the REM data might have lost. This bug has been fixed and REM data are safely stored locally in the Gateway/Wiflow unit and pushed to the server when the connection is reestablished.

## 4 KNOWN OPEN BUGS

### 4.1 TOP HOLDER REVOKED

If an Electronic TopHolder is Revoked from the DVC Operator Interface, it will not be possible to authorize it again. The current way to associate a Revoked TopHolder is to manually power it off and on again, and then proceed with the authorization button to let it work again.



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