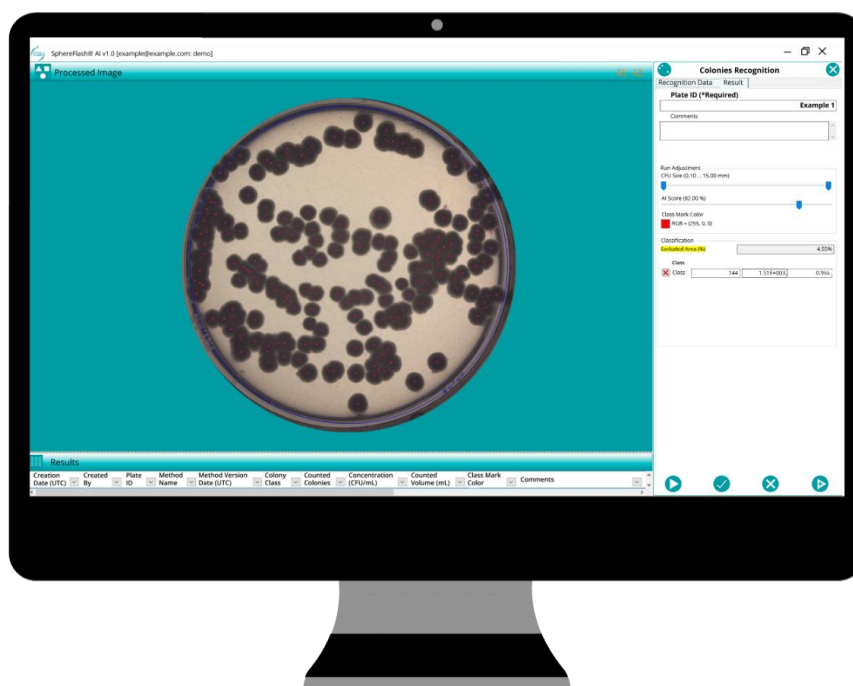


SphereFlash® AI Colony Counting Software

Instructions for Use

Artificial Intelligence-powered Colony Counting Software



EN

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INDICATION OF THE INTRODUCED MODIFICATIONS

If it's the first time that you use SphereFlash® AI Colony Counting Software, please read the entire document carefully.

If it's not the first time that you have used SphereFlash® AI Colony Counting Software, you can read the indication of the introduced modifications in the table below.

Revision	Description of change
03	Update entire document

GLOSSARY

Method	Named collection of parameters that defines how plate images are processed and how colonies are detected and classified. Methods are used to adapt the AI analysis to different plate types, colony appearances, and procedural conditions.
Captured Image	Original image acquired by the SphereFlash® instrument or another colony counter prior to any software processing.
Processed Image	Image that has been analyzed and annotated by the software
Subscription Portal	Web platform used to manage the SphereFlash® AI Plan account
Desktop Application	Application used to process images using the SphereFlash® AI software
AI Plan	Annual subscription AI plan assigned to a company (tenant). The AI Plan defines the available image limit and cloud results limit (Image Pack and Storage Pack). It is managed by the Tenant-admin(s).
Group	Represents a group of users that share results and methods
Image Pack	Defines the maximum number of images that can be processed per year. This includes images from Colony Counting and Verification, but excludes Calibration.
Storage Pack	Defines the maximum number of results stored in the cloud. When the limit is reached, the oldest results are automatically deleted.

1. INTRODUCTION

Thank you for choosing the SphereFlash® AI Colony Counting Software. We are confident this application will become an integral part of your laboratory.

Before installing and using the SphereFlash® AI Colony Counting Software, it is essential that you read these Instructions for Use carefully. Following the instructions and safety information in this document will ensure the safe operation and maintenance of the system.

1.1. Intended Use of the SphereFlash® AI Colony Counting Software

SphereFlash® AI Colony Counting Software is a cloud-based, AI-driven software intended for the automated detection and enumeration of colonies from digital images of microbiological samples.

The software processes user-provided images to generate colony counts based on image analysis.

SphereFlash® AI Colony Counting Software is intended to support laboratory workflows and is not intended for medical or diagnostic use.

1.2. General Information

This section provides general contextual information to help users understand the structure of the SphereFlash® AI Colony Counting Software, the roles involved, and how access to the system is organized before installation and use.

The SphereFlash® AI Colony Counting Software has two main components – the Subscription Portal and the Desktop Application.

1.2.1. Subscription Portal

The SphereFlash® AI Subscription Portal is the central web platform used to select and manage the AI Plan, including image and storage packs, and manage access to the SphereFlash® AI Desktop Application.

The Subscription Portal is accessible at: <https://aicolonycounting.com/> or <https://aicolonycounter.com/>.

The Subscription Portal supports the management of AI subscription plans and system access.

Access to the Subscription Portal is restricted to users with the Tenant-admin role.

Configuration in the Subscription Portal is a mandatory prerequisite before using the Desktop Application.

1.2.2. SphereFlash® AI Desktop Application

SphereFlash® AI Colony Counting Software is an Artificial Intelligence-powered desktop application used to analyze images of microbiological culture plates for automated colony detection, counting, and classification.

The software operates as a cloud-connected solution: image processing and cloud result storage are performed through secure cloud services, while users interact with the system locally via the Desktop Application.

The software can be used:

- In combination with the SphereFlash® automatic colony counter, or

- Independently, by importing previously acquired plate images from a computer.

When the instrument is not connected, calibration and verification menus in the Desktop Application are disabled.

1.2.3. User Roles

The SphereFlash® AI system defines three user roles with different access levels:

User role	Access	Key Capabilities
Operator	Desktop Application	• Perform colony counting • Adjust 'Run Data' and 'Run Adjustment' parameters (if method permits) • Perform verifications & calibrations (if the SphereFlash® instrument is connected) • View and export cloud results, verifications, calibrations, and methods.
Administrator	Desktop Application	• Operator capabilities • Create, edit, delete, import and export counting methods • Define operator permission to adjust Run Adjustment parameters and perform interactive modifications counting results • Configure application parameters • Access audit trail information
Tenant-admin	Desktop Application & Subscription Portal	• Full access to the Desktop Application • Full access to the Subscription Portal Through the Subscription Portal: • Create and manage the organization account (tenant) • Purchase and renew AI plans • Create and manage groups and their users • Set image and cloud results limits per group • Monitor usage and subscription status • Receive all notifications related to the active AI Plan requests from users within the Desktop Application.

NOTE: It is mandatory to have at least one Tenant-admin user. Without a Tenant-admin, it is not possible to access the Subscription Portal.

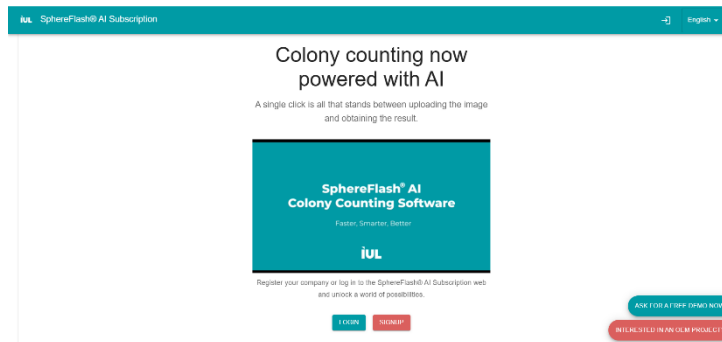
NOTE: Each user account permits only one active session at a time. Simultaneous access is NOT supported.

Once the system has been configured in the Subscription Portal and the Desktop Application has been installed on a compatible computer, users can access all operational functions through the Desktop Application.

2. SUBSCRIPTION PORTAL

2.1. Accessing the SphereFlash® AI Subscription Portal

1. Go to aicolonycounting.com / aicolonycounter.com
2. Click on the 'Sign Up' button to create your company account



3. Enter your company details.

The following pop-up message will be displayed:

Signup application success X
Check your email to finish

NOTE: Use your company email address (e.g., sales@iul-inst.com).

IMPORTANT: Only one registration is allowed per company domain. If you don't know who registered for your company, please contact IUL (sales@iul-inst.com).

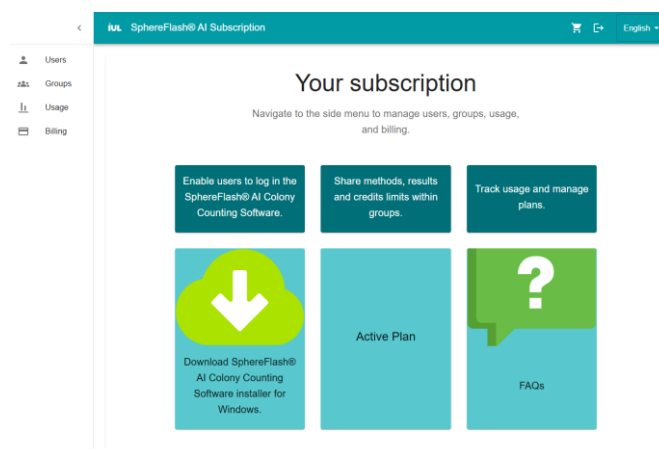
4. Activate your account by completing the following steps:
 - a. **Activate account:** Check your inbox and click the link to verify the account
 - b. **Password setting:** Create the login password for the Subscription Portal and SphereFlash® AI Desktop Application. An email will be received confirming that the password has been updated.
5. Log in to the Subscription Portal using your credentials.

NOTE: If you have forgotten your password, you can reset it using the password recovery option available in the Subscription Portal.

2.2. Navigating the Subscription Dashboard

The Subscription Dashboard provides access to the main subscription management functions, allowing the Tenant-admin to:

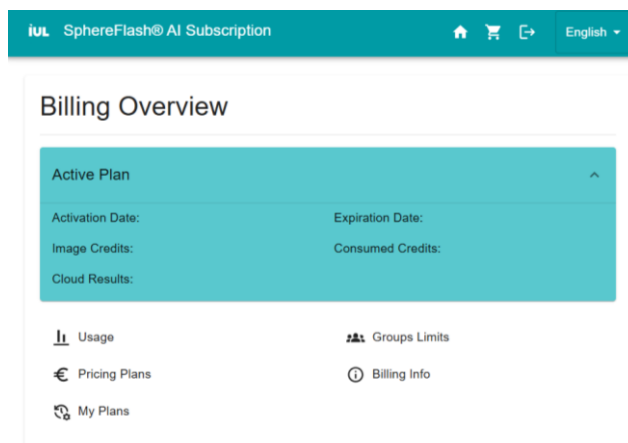
- Navigate the side menu to manage users, groups, and billing.
- Buy Plans (Image Pack & Storage Pack).
- View the Active AI Plan.
- Download the SphereFlash® AI Desktop Application installer (Windows).
- Access FAQs for additional information and support.
- Select a preferred language for the Subscription Portal.



2.3. Buy a Plan

To acquire or renew an AI Plan:

1. Open the side menu and select “Billing”.



2. Click “My Plans”. My Plans Overview will be displayed.

iul SphereFlash® AI Subscription
English

My Plans

Client	Image Credits	Image Pack	Cloud Results	Storage Pack	Order Date	Activation Date	Expiration Date	Consumed Credits	+
--------	---------------	------------	---------------	--------------	------------	-----------------	-----------------	------------------	---

- Click the plus (+) icon to add a new plan.
- Select the desired Image Pack, Storage Pack, and Payment Method

NOTE: Payment is processed through invoice and purchase order, in accordance with the IUL's procurement procedures.

Activate Plans

Image Pack

Image Pack 1

Images: 10000

€/year: 2950

Image Pack 2

Images: 50000

€/year: 12500

Image Pack 3

Images: 100000

€/year: 23900

Image Pack 4

Images: 150000

€/year: 33150

Image Pack 5

Images: 200000

€/year: 39700

Image Pack Demo 1

Free One-time Pack for each SphereFlash® instrument. Linked to Storage Pack Demo 1 and valid until its limit is reached or expiry date

Images: 1000

€/year: 0

Image Pack Demo 2

Free One-time Pack for all users. Linked to Storage Pack Demo 2 and valid until its limit is reached or expiry date

Images: 100

€/year: 0

Storage Pack

Storage Pack A

Cloud results: 1000

€/year: 187

Storage Pack Demo 1

Free One-time Pack for each SphereFlash® instrument. Linked to Image Pack Demo 1

Cloud results: 1000

€/year: 0

Storage Pack Demo 2

Free One-time Pack for all users. Linked to Image Pack Demo 2

Cloud results: 100

€/year: 0

Payment Methods

CREDIT CARD

TRANSFER

CANCEL

ADD

- Click "Add" to confirm the purchase.

My Plans Overview will display the selected AI Plan with a Pending status until activation by IUL.

My Plans									
Client	Image Credits	Image Pack	Cloud Results	Storage Pack	Order Date	Activation Date	Expiration Date	Consumed Credits	+
IUL Inc	1000	0€/year	1000	0€/year	2025-03-07T14:22:29.037Z			0	Pending

Once IUL activates the AI Plan, its status will change to Active, and the plan will be ready for use.

My Plans									
Client	Image Credits	Image Pack	Cloud Results	Storage Pack	Order Date	Activation Date	Expiration Date	Consumed Credits	+
IUL Inc	1000	0€/year	1000	0€/year	2025-03-07T14:22:29.037Z	2025-03-07T14:28:32.683Z	2026-03-07T14:28:32.683Z	0	Active

2.4. Review the Active Plan and Billing Overview

1. Open the side menu and select “Billing”.
2. View your current “Active Plan” and billing information.

iUL SphereFlash® AI Subscription
🏠
🛒
🔗
English

Billing Overview

Active Plan

Activation Date: 28/3/2025

Image Credits: 1000

Cloud Results: 1000

Expiration Date: 28/3/2026

Consumed Credits: 0

📊 Usage

👤 Groups Limits

💶 Pricing Plans

🕒 Billing Info

📋 My Plans

2.5. Create a New Group

Creating at least one group is **mandatory** to use the SphereFlash® AI Desktop Application.

In the Subscription Portal, each group represents a different department, laboratory, or organizational unit. It is the responsibility of the Tenant-admin to decide whether each department or laboratory has its own group.

All users who belong to the same group share cloud results and audit trail (only available in Tenant-admin and Administrator role).

1. Go to the side menu and select “Groups”.

Groups Overview						
Name	Description	Members	Consumed Credits	Group Credit Limit	Group Results Limit	+

2. Click the plus (+) icon to add a new group.

3. Enter the group information (Name, Description, assign Group Image and Cloud Results Limit, and assigned Members).

Add Group

Members

4. Click “Add” to create the group.

Groups Overview

Name	Description	Members	Consumed Credits	Group Credit Limit	Group Results Limit	+
Department 1	Laboratory		0	100	100	

NOTE: Once users are assigned to a group, they will appear in the “Members” column.

5. After the group is created:
 - Modify the group information using the Pencil icon (), then confirm.
 - Delete the group using the Trash icon (), then confirm.

WARNING: Deleting a group permanently removes access to all associated cloud results. This action cannot be undone.

2.6. Add a New User to a Group

Assigning a user to a group is **mandatory** to use the SphereFlash® AI Desktop Application.

1. Go to the side menu and select “Users”.
2. Click the plus (+) icon to add a new user.
3. Enter the user information (Name, Email, assigned Group and Role).
4. Click “Add” to create the user.
5. After the user is created:
 - Modify the user info using the Pencil icon (), then confirm.
 - Delete the user using the Trash icon (), then confirm.

Once the user is added, the user should activate their account.

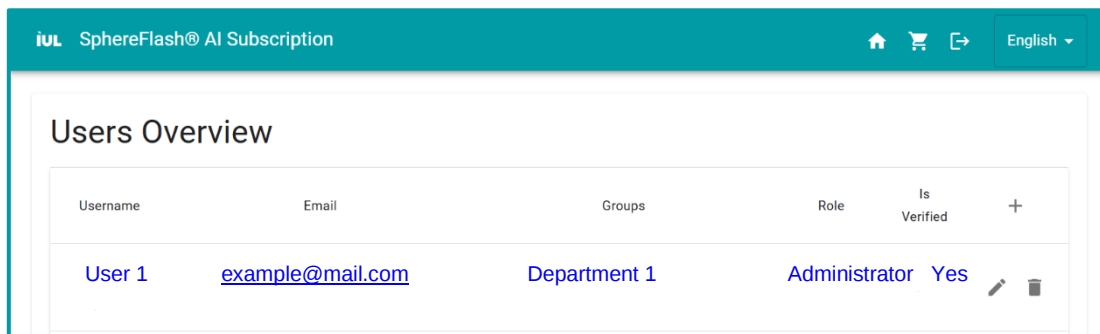
- If the user has the Tenant-admin role, follow the activation process described in the earlier section.
- If the user has the Administrator or Operator role, complete the following steps:
 - a. **Activation email:** Check the inbox and click the link to verify the account and download the desktop application.

- b. **Password setting:** Create the login password for the SphereFlash® AI Desktop Application. An email will be received informing that the password has been updated.

2.7. Check if the User Has Verified Their Account

After adding a new user, it is important to check that they have completed the email verification process.

1. Go to the “Users” section in the side menu.

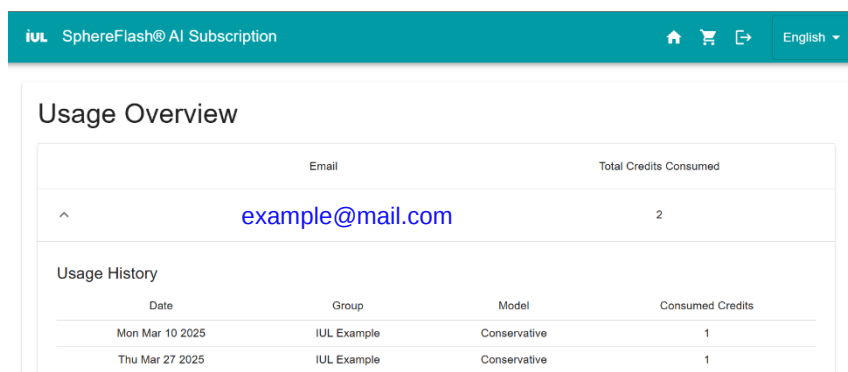


Username	Email	Groups	Role	Is Verified	+
User 1	example@mail.com	Department 1	Administrator	Yes	 

2. Check the “Is Verified” column next to the user’s name.
 - **If the status is “Yes”:** The user can access the Desktop Application and, if applicable, the Subscription Portal (only Tenant-admin).
 - **If the status is “No”:** The user has not yet completed the email verification. Wait up to **72 hours**, as the user may still complete the verification process.
 3. If the user has not verified the account after 72 hours:
 - a. Delete the user account.
 - b. Create the user account again.
- ⇐ Contact the user and request completion of the new email verification link.

2.8. View and track Image consumption by each user

1. Go to the side menu and select “Usage”.



Email	Total Credits Consumed
example@mail.com	2

Usage History

Date	Group	Model	Consumed Credits
Mon Mar 10 2025	IUL Example	Conservative	1
Thu Mar 27 2025	IUL Example	Conservative	1

2. Access the Usage History by clicking on the dropdown arrow (▾) next to the user’s email.

NOTE: The usage accumulates on a daily basis.

3. DESKTOP APPLICATION

3.1. Computer Requirements

To install and run the SphereFlash® AI Desktop Application, the computer must meet or exceed the following requirements:

Processor	Multicore with a <i>CPU Mark</i> ¹ score of at least 2500 (scores over 8000 are recommended)
Operating System	Microsoft 64-bit Windows 10, Windows 11
.NET framework	Version 4.6.2 or higher
Interface	1 free USB 3.0 port 
RAM	8 Gigabytes
Free disk space	100 Megabytes
Screen resolution	Full HD 1920x1080 pixels (recommended)
Screen size	24" (recommended)
Optional third-party applications	• Microsoft Excel® 2007 or higher, 64 bits (to open exported Excel files) • A virtual PDF printer such as PDFCreator (to create PDF reports) • Adobe Acrobat Reader DC® 2015 or higher (to digitally sign PDF reports)
Connectivity	An internet connection is required

NOTE: The computer's internet connection should have a minimum speed of 20 Mbps for both uploads and downloads when accessing www.aicolonycounting.com.

3.2. Setting Up the Desktop Application

NOTE: You can skip this section if an IUL representative staff has already installed and set up the application for you.

IMPORTANT: For the initial setup of the application, you should be authorized by your company's management to act as administrator of the SphereFlash® Desktop Application.

3.2.1. Installation of the SphereFlash® Instrument

Please read the Instructions for Use of the SphereFlash® instrument (Doc. 50008483) to set up the SphereFlash® Instrument.

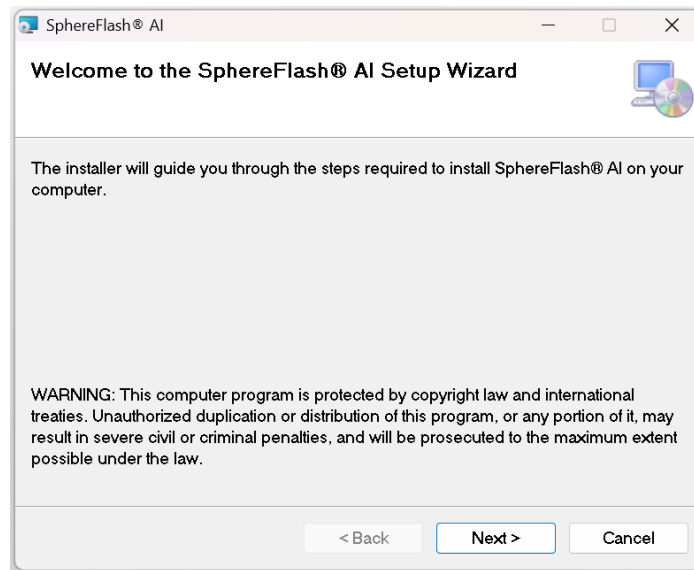
Connection of the SphereFlash® instrument is mandatory during the installation of the DFM 72BUC02-MLA camera driver.

3.2.2. Installation of the software

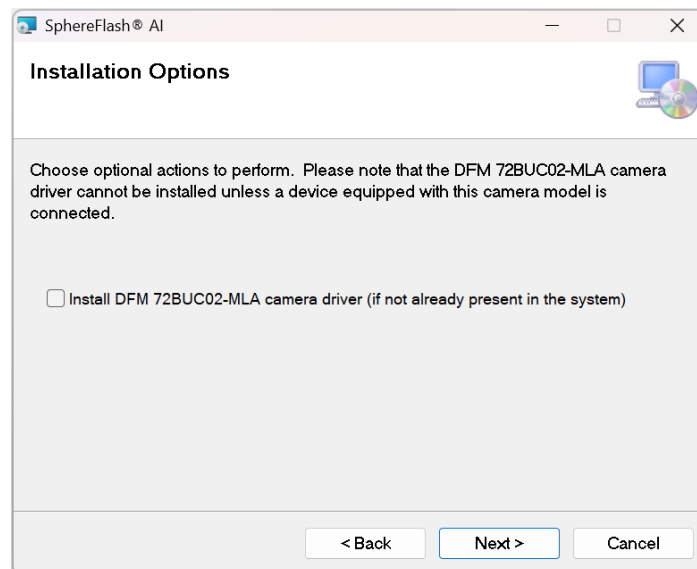
1. Download the software by scanning the QR code or using the link found in the datamatrix document supplied with the device. Alternatively, the software installer can also be downloaded from the IUL Support Page.

¹ Check your CPU score at: https://www.cpubenchmark.net/cpu_list.php

2. Run the .exe file and follow the on-screen instructions carefully.



3. Click on 'Agree' to the End-User License Agreement to proceed.
4. After the End-User License Agreement window, the following screen will appear:



One checkbox option is available:

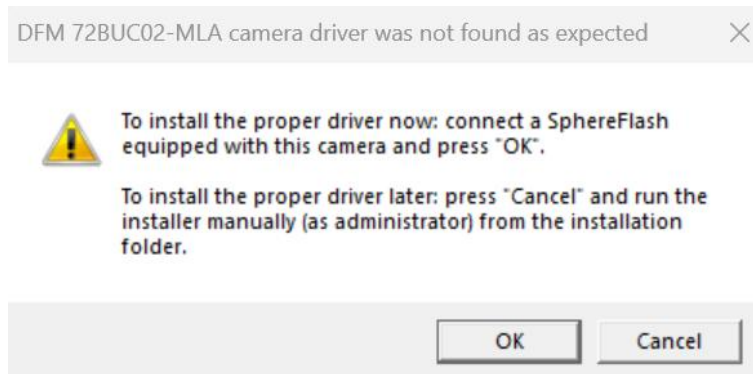
- Install DFM 72BUC02-MLA camera driver (if not already present in the system).
 - Do NOT enable this option if you have a SphereFlash® instrument with a serial number 10007000/0576 or higher.

NOTE: The Serial Number can be found on the back of the instrument.

- ENABLE this option if you have a SphereFlash® instrument with a serial number 10007000/0575 or lower to install the new DFM 72BUC02-MLA camera driver.

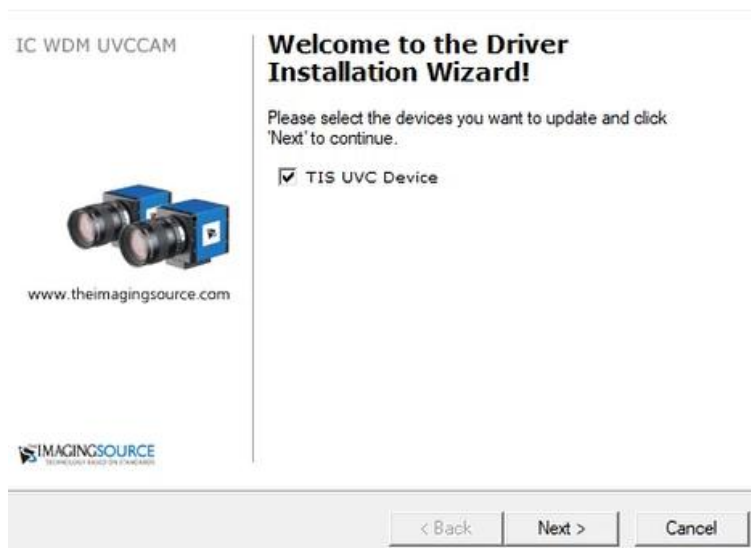
IMPORTANT: The SphereFlash® instrument must be connected to the computer before installing the camera driver.

NOTE: If this option is selected while SphereFlash® device is not connected, pressing the 'Next' button will display the following error message:



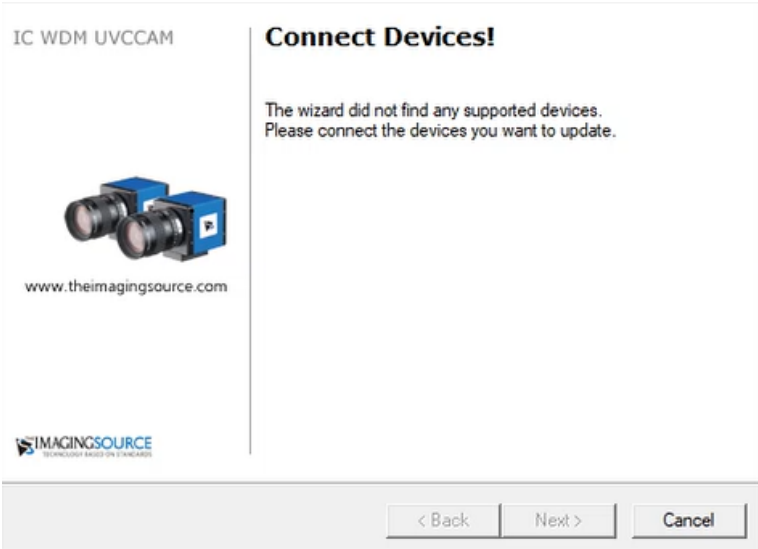
Aside from the SphereFlash® software, the Imaging Source Processor Idle Manager and camera driver(s) will also be installed. These components are necessary to ensure correct and safe operation of the device.

The image below is the installation window for the DFM 72BUC02-MLA camera driver when the SphereFlash® device is connected (if enabled):

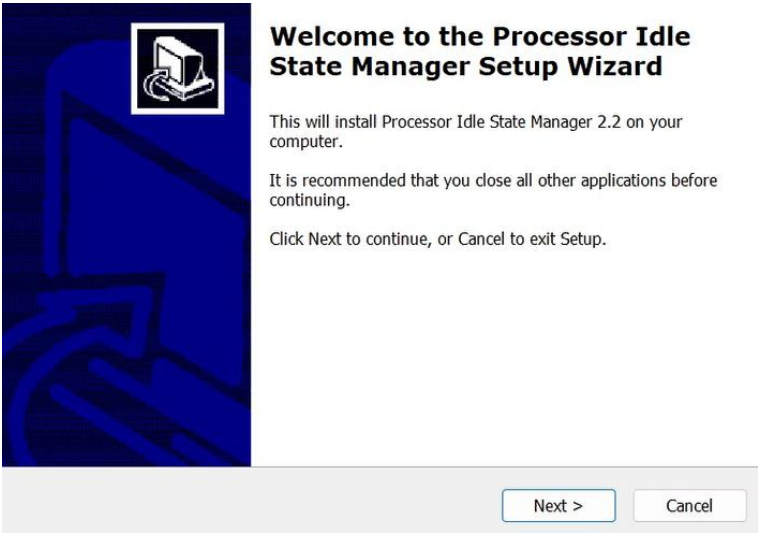


NOTE: In some cases, the 'TIS UVC Device' checkbox may not appear even though the SphereFlash® device is connected. If this occurs, disconnect and reconnect the device, then wait a few seconds until the checkbox appears. The checkbox **MUST** be visible and enabled to ensure proper installation of the camera driver.

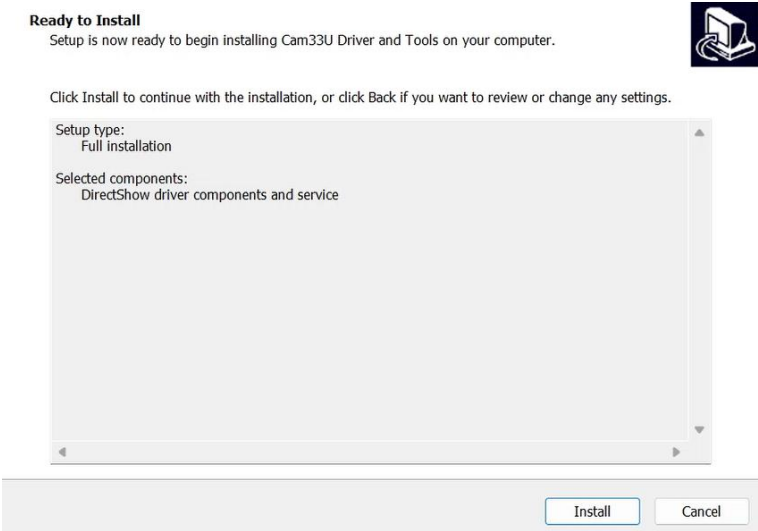
The image below is the installation window for the DFM 72BUC02-MLA camera driver when the SphereFlash® device is NOT connected (if enabled):



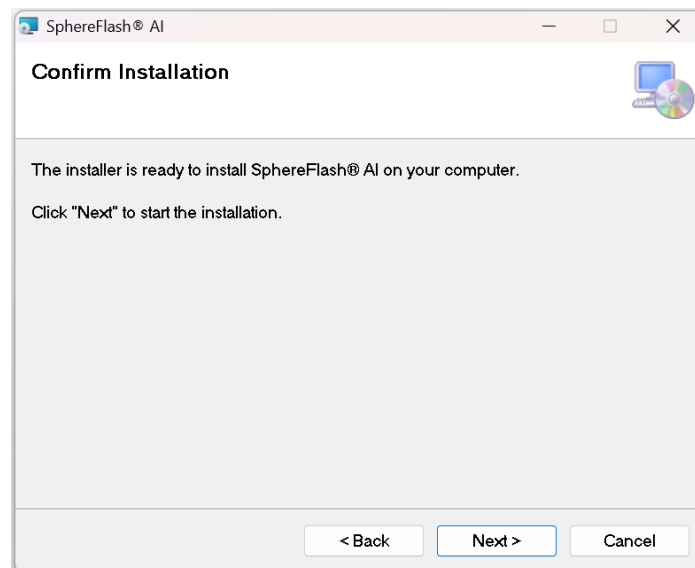
The image below is the installation window for the Imaging Source Processor Idle Manager:



The image below is the installation window for the new camera driver:



Multiple installation windows will appear during the installation process. All pre-selected options must remain enabled. Proceed with the installation as instructed. If the installation is successful, the following window appears.



Now your desktop should contain a new shortcut for the SphereFlash® AI Colony Counting Software ®:



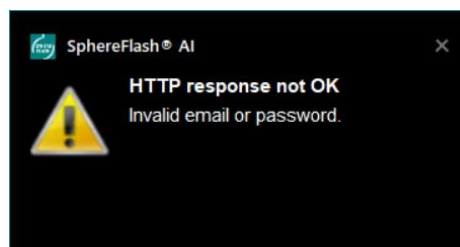
3.3. Log In

Click the SphereFlash® AI Colony Counting Software Desktop Application shortcut icon on your desktop. The application will launch, and a login dialog will appear on your screen:

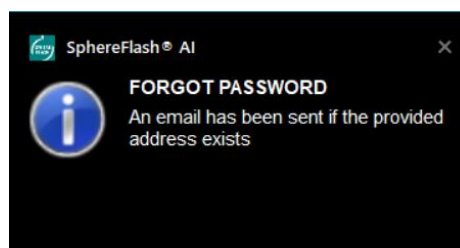


User (input field): Enter your username. Login credentials should be obtained by contacting the Tenant-Admin to request the creation of a new user account.

- Password** (input field): Enter your user password.
- Login** (button): Click to access the desktop application. If the credentials entered are incorrect, the following pop-up message will be displayed:



- Forgot password** (link): If you have forgotten your password, click here to receive an email with a link to reset your password. Ensure that the email entered in the “User” input box belongs to an active user.



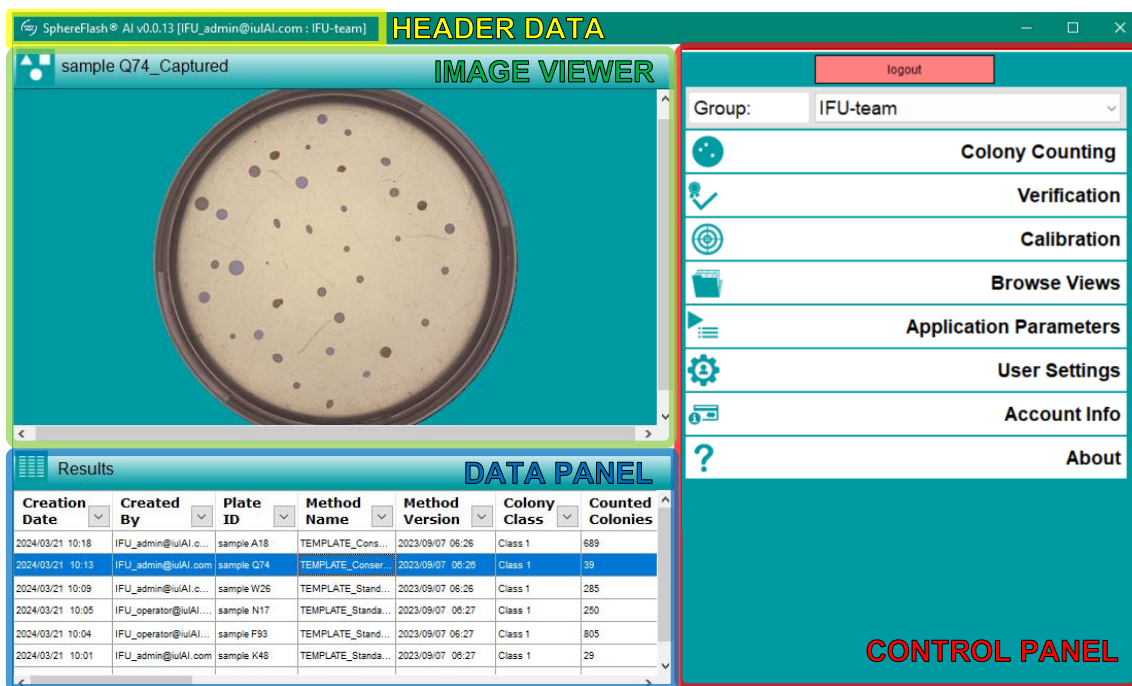
- Start WITHOUT SphereFlash® device** (radio button): Select this checkbox to use the application without the SphereFlash® instrument connected. This will disable calibration and verification menus, and images will be uploaded via the file browser for processing.
- Off** (button): Click to close the desktop application.

IMPORTANT: After a time of inactivity, the application is blocked, and the user is required to re-enter their password into a re-login dialog.

3.4. Main Screen Overview

The main screen of the SphereFlash® AI Colony Counting Software Desktop Application is divided into four distinct sections, each color-coded below for easy identification:

- Header Data (yellow rectangle).
- Image Viewer (green rectangle).
- Control Panel (red rectangle).
- Data Panel (blue rectangle).



These four main sections are consistently present across various screens within the application. You can resize these sections by placing the cursors over the edges of the panels and dragging them to adjust.

Additionally, interactive tooltips are provided for all buttons and controls: simply hover your cursor over any item, and a brief description of its function or purpose will be displayed.

When a particular operation panel is displayed, you can return to the selection control panel by clicking on the top-right  cross icon.

3.4.1. Header Data

The header of the window displays the following information for easy reference:

- Application name and version.
- Logged-in user.
- Current group (a single user can be assigned to multiple groups by the Tenant-Admin within the Subscription Portal).

3.4.2. Image Viewer

The Image Viewer displays plate images associated with the currently selected result. Whenever a new image is processed (from Colony Counting menu) or a stored cloud result is selected (from Browse Views), the corresponding image is displayed in the Image Viewer.

3.4.3. Control Panel

The Control Panel provides access to the main application functions and menus.

Operational Data:

Logout: End the current user session.

Group: Display the current active group. If the user is assigned to multiple groups, a different group can be selected by clicking on this field.

NOTE: Only data associated with the currently selected group is displayed. Plate results and audit trail information (available to Tenant-admin and Administrator roles only) are shown exclusively for the active group.

Menus:

Colony Counting: Access the functions to process plate images and create counting methods.

Verification: Access the verification procedure.

NOTE: Only active if SphereFlash® instrument is connected.

Calibration: Access the calibration procedure for the SphereFlash® instrument.

NOTE: Only active if SphereFlash® instrument is connected.

Browse Views: Provide access to stored data, including Results, Results Summary, Methods, Calibrations, and Verifications. In addition, access to Audit Trail.

Application Parameters: Allow configuration of local application settings. Accessible only to users with a Tenant-Admin or Administrator role.

User Settings: Allows the current user to change their password.

Account Info: Display current AI Plan account information and allows requesting additional images for processing.

About: Display software version information and provide access to related documentation, including the Instructions for Use and the End User License Agreement.

3.4.4. Data Panel

The Data Panel will display various tables based on the current screen and selection. Possible data tables include:

- Cloud results stored
- Cloud results stored summary
- Available methods
- Calibration results
- Verification results

In any of these tables, you can display the data in several ways to better view and analyze the data:

Sorting: Click on a column header to sort the table by that column's values. Click again to sort in reverse order.

Filters: Click the filter icon () in any column header to open the filter dialog for that column, which will vary depending on the data type of the column. Filters limit

the display to items that meet the filter criteria. To remove filters, right-click anywhere on the table and choose 'Clear Filter'.

Layout: Adjust the layout by clicking and dragging a column header to a new position or by dragging the edges of any column or row to resize.

To select one of the results, click its row on the view. To select a contiguous range of results, hold the *Shift* key when clicking the first and the last results of the range. To add or remove one result from the selection, hold the *Ctrl* key and click the result as is usual in Windows programs. To select all the results in the (possibly filtered) view, click on the top of the leftmost column.

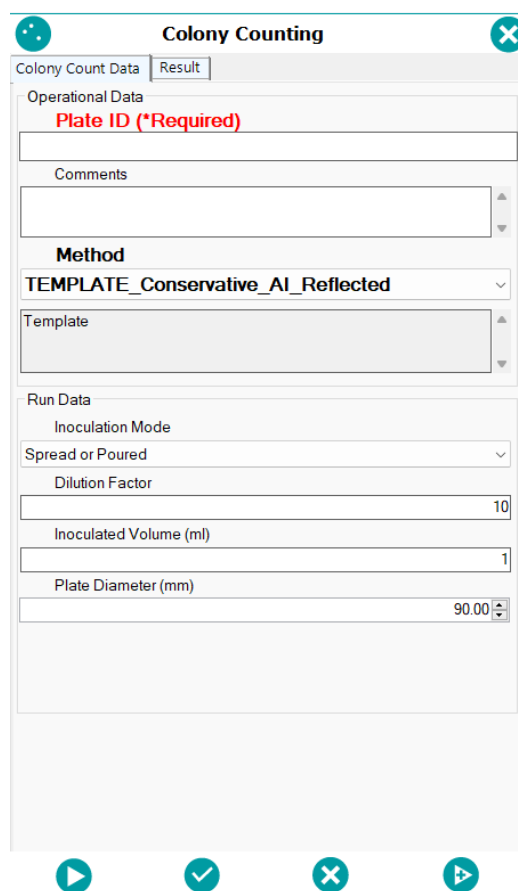
Detailed instructions and additional information are available in later sections.

3.5. Colony Counting

This menu provides access to the functions required to process plate images, review AI results, store or discard cloud results and create methods.

3.5.1. Colony Counting process

When the 'Colony Counting' menu is selected, the Colony Counting panel is displayed in the Control Panel area:



The screenshot shows the 'Colony Counting' panel with a title bar containing a close button (X) and a help icon. Below the title bar are two tabs: 'Colony Count Data' and 'Result'. The 'Colony Count Data' tab is active. The panel is divided into several sections: 'Operational Data' with a red label 'Plate ID (*Required)' and an input field, and a 'Comments' text area; 'Method' with a dropdown menu showing 'TEMPLATE_Conservative_AI_Reflected' and a 'Template' text area; and 'Run Data' with fields for 'Inoculation Mode' (dropdown showing 'Spread or Poured'), 'Dilution Factor' (input field with '10'), 'Inoculated Volume (ml)' (input field with '1'), and 'Plate Diameter (mm)' (input field with '90.00'). At the bottom of the panel are four circular icons: a play button, a checkmark, an X, and a right-pointing arrow.

This panel includes the following functional buttons:



Run

Initiates image capture and processing when the SphereFlash® instrument is connected. Right-clicking the button allows selection of an image file for processing.

NOTE: If the 'Start WITHOUT SphereFlash® device' option is active, this will open a file browser to select an image for processing.

IMPORTANT: Uploaded plate images shall be square, centered, and have a minimum resolution of 768*768 pixels (PNG format).

- ✓ **Accept** Stores the current cloud result data.
- ✗ **Discard** Clears the current cloud result data.
- ▶ **Method Settings** Provides access to the method editing area.

NOTE: This button is only active for users with the Tenant-admin or Administrator role.

The Colony Counting panel includes two tabs that are displayed sequentially during the workflow:

- Colony count data tab
- Result tab

3.5.1.1. Colony count data tab

The 'Colony Count Data' allows the user to define the operational and run parameters required to process a plate image:

Colony Count Data | Result

Operational Data

Plate ID (*Required)

Comments

Method

TEMPLATE_Conservative_AI_Reflected

Template

Run Data

Inoculation Mode

Spread or Poured

Dilution Factor

10

Inoculated Volume (ml)

1

Plate Diameter (mm)

90.00

Operational Data:

Plate ID: Enter text to identify the sample by typing it manually or, if a barcode reader is connected, by scanning the barcode.

NOTE: This field is mandatory. A colony count cannot be run if this field is empty.

IMPORTANT: Certain special characters are not allowed in the Plate ID content, such as: \ / : * ? " < > | .

Comments: Add any relevant comments about the plate.

Method: Select a method within your current group from the drop-down list.

By default, a list of Template methods is provided (see section 3.5.3. Template methods for detailed information). The list may feature various AI models (e.g. Conservative or Standard) and lighting modes (top, bottom, or both).

A text box below the list displays a description of the selected method (if applicable).

Run Data

Inoculation Mode: Select either spread (default) or one of the listed spiral distribution methods from the drop-down list.

NOTE: All listed spiral distribution methods are compatible with IUL's spiral platter Eddy Jet 2W.

Dilution Factor: Specify the dilution factor of the sample.

NOTE: This value is required to calculate the CFU (colony-forming units) concentration per milliliter.

Inoculated Volume (ml): For spread distributions, enter the total sample volume inoculated onto the plate.

For spiral distributions, this value is automatically determined based on the selected distribution.

NOTE: This parameter is used to calculate the CFU per milliliter

Plate Diameter (mm): Indicate the inner diameter of the plate (inner distance between the lateral walls), within which the inoculated volume has been spread.

NOTE: This field is editable when spread mode is selected.

Once all data is entered, place the corresponding centering device with the plate to be counted on the SphereFlash® instrument platform. The image is then processed by clicking the Run button (.

The diffusing sphere is lowered, an image is taken, and the sphere is raised again.

3.5.1.2. Result tab

After image processing, the 'Result tab' is displayed automatically.

The screenshot shows the 'Colony Counting' application window with the 'Result' tab selected. The interface includes a 'Plate ID (*Required)' field with the value 'sample A45', a 'Comments' text area, and 'Run Adjustment' sliders for 'CFU Size (0.10 .. 15.00 mm)' and 'AI Score (75.00 %)'. The 'Class Mark Color' is set to red with RGB values (255, 0, 0). A 'Classification' section shows 'Excluded Area (%)' at 0.01%. Below this is a table with columns for 'Colony Class', 'Counted Colonies', 'Concentration (CFU/ml)', and 'Counted Volume (ml)'. The table contains one row for 'Class 1' with values 133, 1.33E+003, and 1.000. At the bottom of the window are four navigation icons: a play button, a checkmark, an 'X', and a right arrow.

Colony Class	Counted Colonies	Concentration (CFU/ml)	Counted Volume (ml)
Class 1	133	1.33E+003	1.000

The 'Result' tab allows the user to review results and, if required, perform manual adjustments before storing or discarding the cloud result:

Result:

Plate ID: Inherited from the Colony Count Data tab.

Comments: Inherited from the Colony Count Data tab.

Run Adjustment parameters:

CFU Size: Slider that features two handles to set the minimum and maximum colony sizes to be counted.

NOTE: This helps filter out small artifacts that do not correspond to colonies.

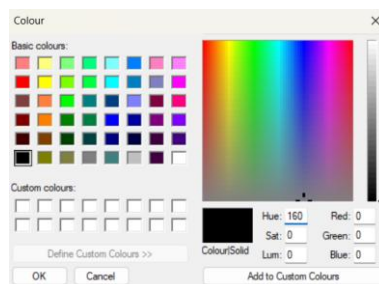
NOTE: When the cursor is positioned over the slider, a tooltip is displayed providing a more detailed description. Once the cursor is positioned over the slider handle, the value can be adjusted using the mouse wheel, allowing very fine and gradual adjustments while immediately observing the changes.

AI Score (%): Slider to adjust the balance between sensitivity (detect more colonies) and specificity (reduce false positives) according to your specific colony detection needs. The AI score is the ratio of specificity to sensitivity.

- Decreasing the AI Score increases sensitivity (less stringent criteria for colonies to be detected) but reduces specificity (higher risk of false positives).
- Increasing the AI Score has the opposite effect, applying more stringent detection criteria, improving specificity to reduce false positives.

Class Mark Color:

Color of the visual markers placed at the center of each counted colony. The color can be changed by selecting the  button and choosing a color from the palette:



NOTE: When more than one colony class is defined, the marker color for each class is configured in the Method Settings.

Classification:

Excluded Area (%):

Percentage of the inoculated area excluded from counting in order to avoid artifacts.

NOTE: This value is determined by the difference between the defined plate diameter (blue circle) and the counted area (red circle), or by manual exclusion using the interactive feature.

Colony Class:

Names of the classes defined in the current method.

NOTE: When default template methods are used, the entire plate is counted, and a single class (Class 1) is displayed.

Counted Colonies:

Number of colonies counted for each colony class within the region of interest, including any manual inclusions or exclusions..

Concentration (CFU/ml):

Calculated CFU concentration per milliliter for the class.

$$\text{CFU/ml} = \text{Count} \times \text{Dilution Factor} / \text{Counted Volume}$$

Counted Volume (ml):

Sample volume within the analyzed plate area (inside the counting region and excluding any interactively excluded area. This volume is used to calculate the CFU per milliliter.

For spread distributions, Count Vol = Inoculated Volume x (1 – Excluded Area).

For spiral distributions, only the volume corresponding to the counted spiral regions is considered.

NOTE: For spiral distributions with the logarithmic/exponential method, colonies are counted from the outer ring inward. Counting stops at the ring where the predefined threshold is exceeded, according

to standard rules (e.g. 20 CFUs in a 1/8 sector corresponds to 160 CFUs over the full plate).

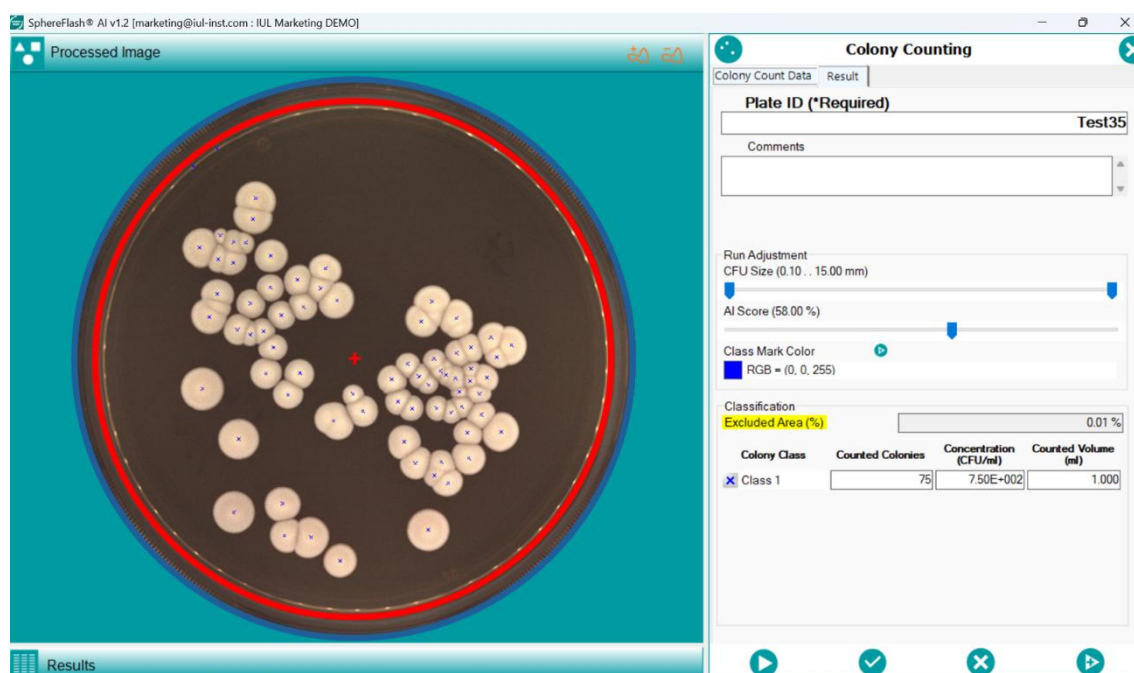
Functional buttons

-  **Accept** Stores the current cloud result data
-  **Discard** Clears the processed result
-  **Method Settings** Opens the method configuration menu, allowing adjustment of default parameters, and fine-tunes the method used for the current cloud result

Instructions on how to perform manual adjustments, if required, are detailed in section 3.5.1.3. *Manual result adjustments*.

After reviewing the result, the functional buttons can be used to accept, discard, or modify the method used.

The processed plate image is displayed alongside the Results tab in the Image Viewer for visual verification before saving or discarding results.

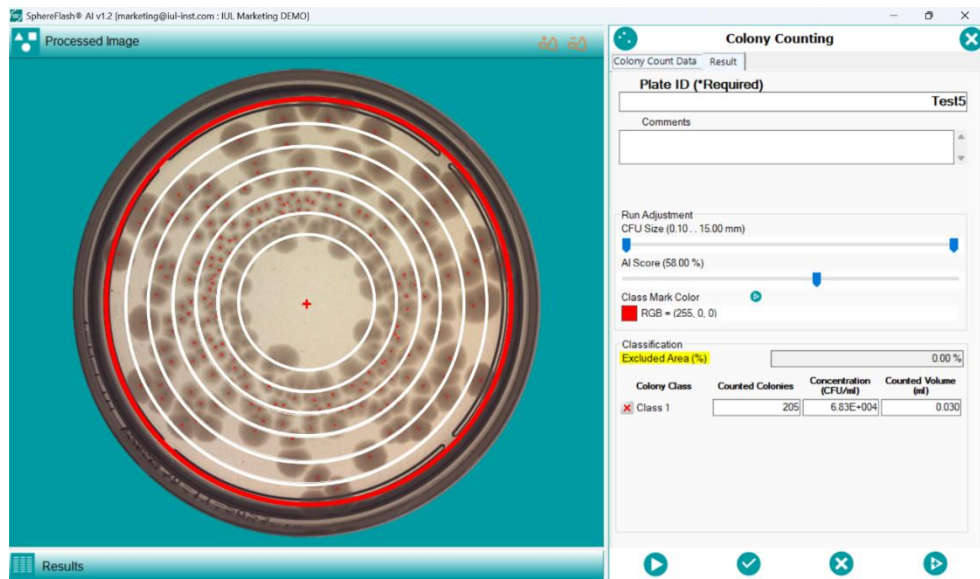


Detected colonies are marked with the corresponding class mark color at their centers and the center of the plate is also identified by a **red plus (+)** symbol.

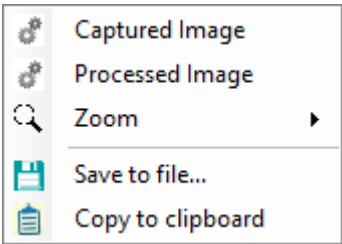
The **blue circle** represents the plate diameter defined in the 'Colony Count Data' tab. It corresponds to the inner diameter of the plate, within which the inoculated volume has been spread.

The **red circle** defines the counted area, that is the region within which colonies are included in the count. By default, this circle is positioned slightly inside the plate diameter to prevent artifacts near the plate walls from being counted as colonies.

When a spiral distribution inoculation mode is selected, the processed image also displays the 6 concentric reference circles (or spiral grids) in white, corresponding to the spiral inoculation pattern.



Additional image interaction options are available by right-clicking within the image viewer, opening a contextual menu that includes:



- Captured Image:** View the original captured image, without software processing.
- Processed Image:** View the image processed by the software, which includes visual marks. If manual adjustments have been performed, the corresponding visual overlays are also shown.
- Zoom:** Adjust the zoom level to customize the size of the displayed image. The image can be displayed using predefined zoom options (*Fit Width*, *Fit Height*, *1:1*, *2:1*, *4:1*, *8:1*, *16:1*, and *32:1*). Alternatively, progressive zoom can be performed using the mouse wheel: scrolling forward zooms in, while scrolling backward zooms out.
- Save to file...:** Save the image currently displayed in the Image Viewer (captured or processed). A file browser will open, allowing you to select the destination folder and specify the file name.
- Copy to clipboard:** Copy the image currently displayed in the Image Viewer to the clipboard, allowing it to be pasted into another application.

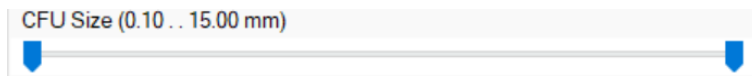
3.5.1.3. Manual result adjustments

Types of manual adjustments can be performed in the Image Viewer:

- Manual adjustment of the CFU size filter
- Manual adjustment of the AI score
- Manual adjustment of the counted area
- Manual addition or removal of individual colonies
- Manual adjustment using methods

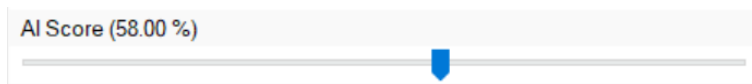
Manual adjustment of the CFU size filter

Use the CFU size slider to adjust the CFU size range for counting.



Manual adjustment of the AI score

Use the slider to increase or decrease the AI score.



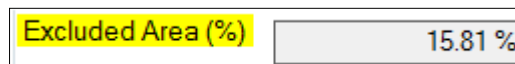
Manual adjustment of the counted area

Manual adjustment of the counted area can be performed via several options:

- **Option A:** Resize and reposition the counted area (red circle)
- **Option B:** Manually exclude or re-include selected regions

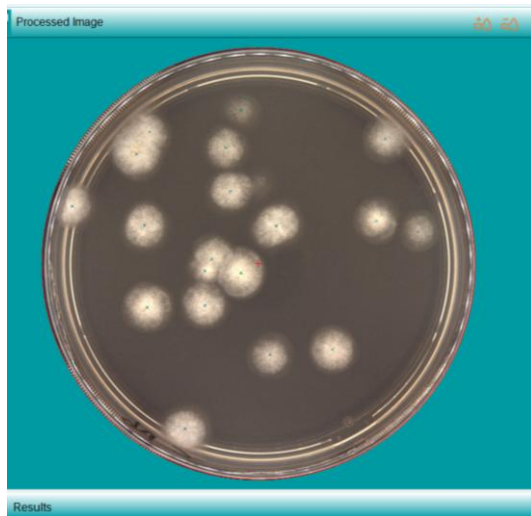
Option A: Resize and reposition the counted area (red circle)

1. Click on the 'Excluded Area (%)' label. The label is highlighted in yellow:



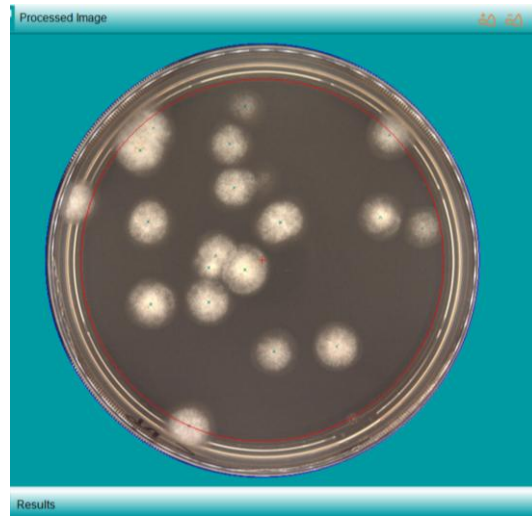
2. Click on the red circle and resize or move it as required.

Before resizing of red circle



Classification
Excluded Area (%) 0.01 %

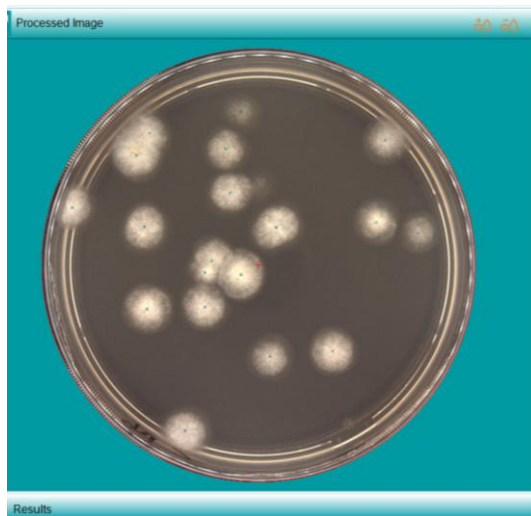
After resizing of red circle



Classification
Excluded Area (%) 30.24 %

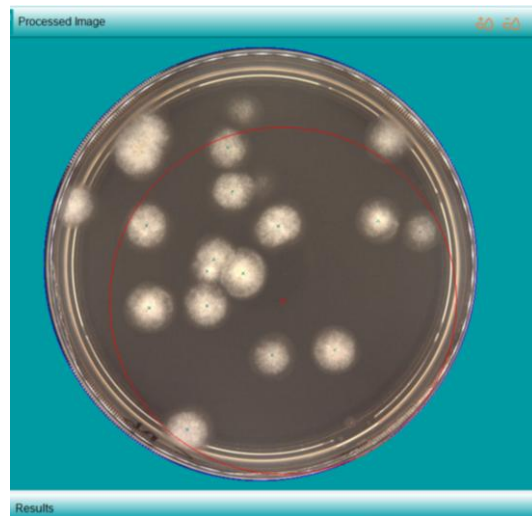
3. The plate center can be adjusted by selecting and moving the red plus (+) symbol.

Before moving red circle



Classification
Excluded Area (%) 0.01 %

After moving red circle



Classification
Excluded Area (%) 35.95 %

Option B: Manually exclude or re-include selected regions

1. Click on the 'Excluded Area (%)' label. The label is highlighted in yellow.

Excluded Area (%) 15.81 %

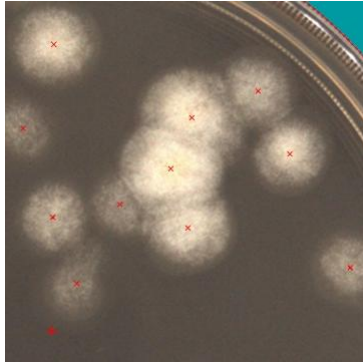
2. Two freehand drawing icons appear on the right side of the top bar of the image viewer.



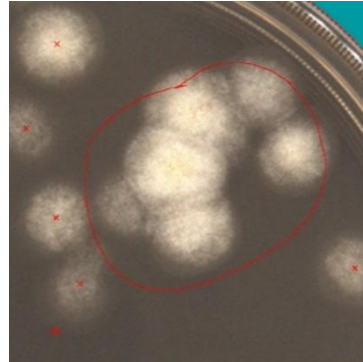
3. Use:

- **Minus** () to draw a closed curve around areas to be excluded from counting.

Before

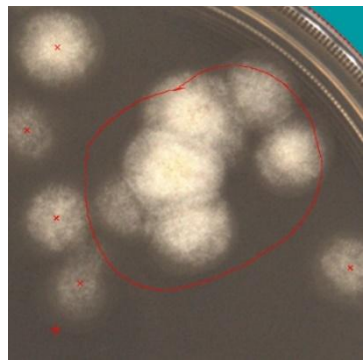


After

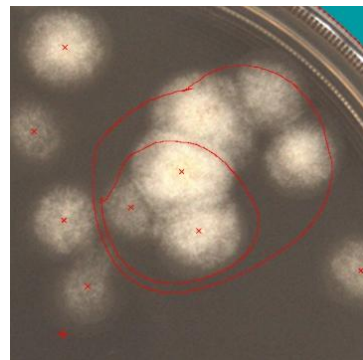


- **Plus** () to define areas within an excluded region where colonies should still be counted.

Before



After



Manual addition or removal of individual colonies

1. Click on the label of the desired colony class. The label is highlighted in yellow.

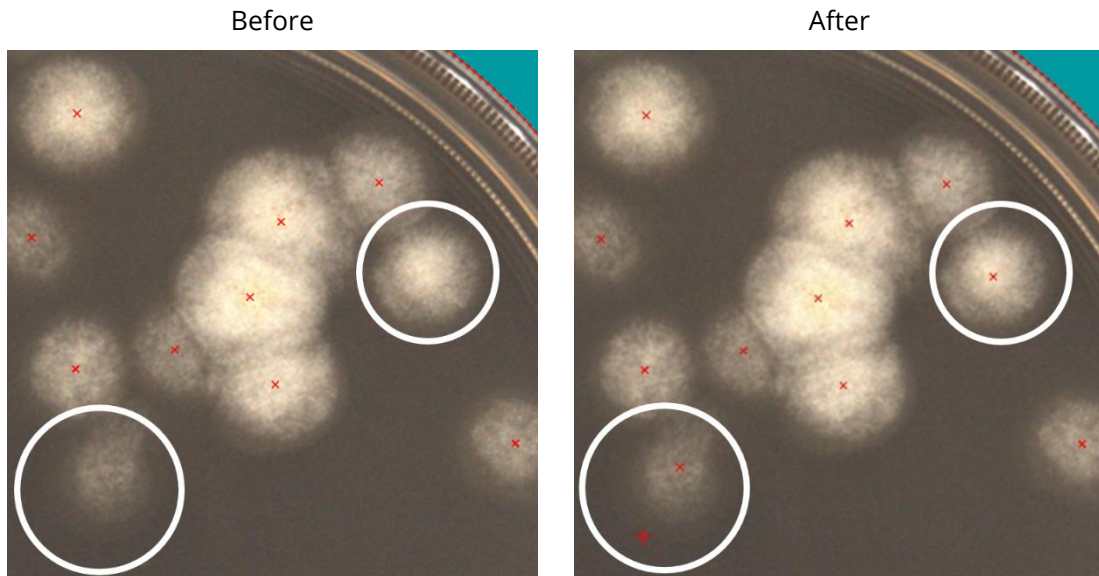
Type	Count	I
✖ Count Group 1		32

2. The plus (+) and minus (-) icons appear on the right side of the top bar of the image viewer.

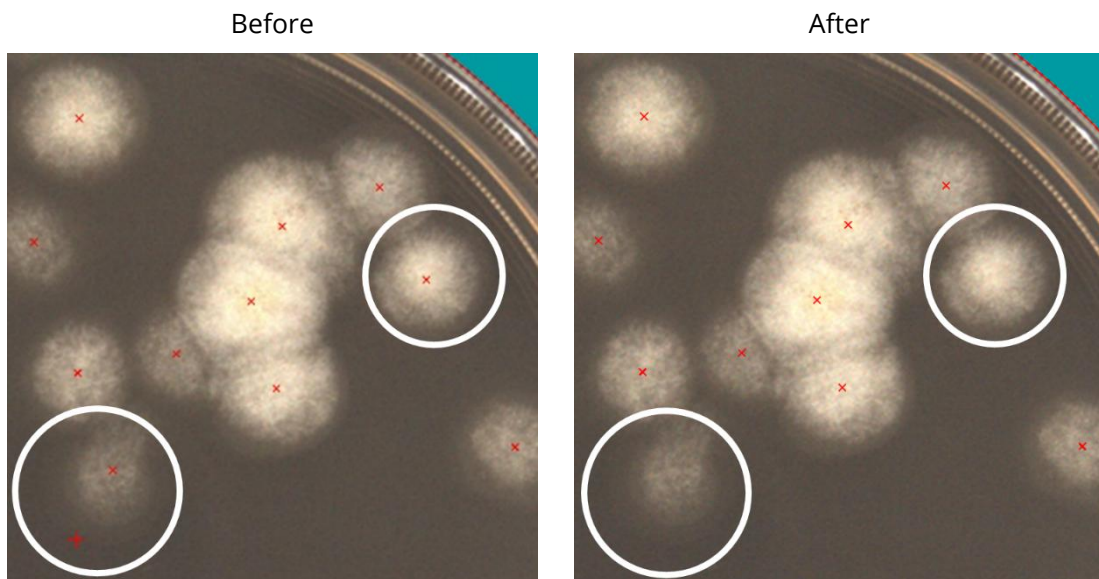


3. Use:

- Plus () to manually add a colony by clicking on its center.



- Minus () to remove a counted colony by clicking on its center.



Manual adjustment using methods

See section 3.5.4. *Methods settings* for detailed instructions on how to create and edit methods.

After manual adjustments are performed, the results (counted colonies, concentration and counted volume) are automatically recalculated.

Colony Class	Counted Colonies	Concentration (CFU/ml)	Counted Volume (ml)
 Class 1	19	1.90E+002	1.000

Click the 'Accept' button, , to store the processed result in the data panel. By doing so, one cloud result will be used. Click the 'Discard' button, , to discard the processed image. When the cloud result is stored, the following message is displayed in the "Comments" field to indicate that manual adjustments have been applied :

<<Interactive changes have been made>>

For a more detailed guide on how to perform manual adjustments, refer to Doc. 50009060.

3.5.2. Cloud results data panel

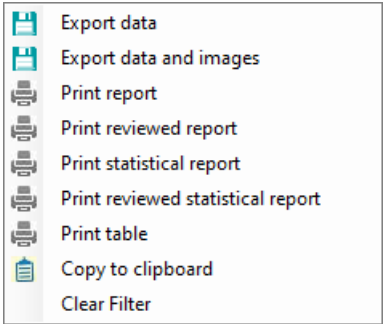
The latest cloud results stored for the current group are displayed in the Data Panel:

Results							
Creation Date (UTC)	Created By	Plate ID	Method Name	Method Version Date (UTC)	Colony Class	Counted Colonies	Concentration (CFU/mL)
2024/03/21 10:18	IFU_admin@iulAI.c...	sample A18	TEMPLATE_Cons...	2023/09/07 06:26	Class 1	689	6.89E+003
2024/03/21 10:13	IFU_admin@iulAI.com	sample Q74	TEMPLATE_Conser...	2023/09/07 06:26	Class 1	39	3.90E+002
2024/03/21 10:09	IFU_admin@iulAI.c...	sample W26	TEMPLATE_Stand...	2023/09/07 06:26	Class 1	285	2.85E+003
2024/03/21 10:05	IFU_operator@iulAI...	sample N17	TEMPLATE_Stand...	2023/09/07 06:27	Class 1	250	2.50E+003
2024/03/21 10:04	IFU_operator@iulAI...	sample F93	TEMPLATE_Stand...	2023/09/07 06:27	Class 1	805	8.05E+003
2024/03/21 10:01	IFU_admin@iulAI.com	sample K48	TEMPLATE_Stand...	2023/09/07 06:27	Class 1	29	2.90E+002

Each cloud result includes the following information:

- Creation date
- Plate ID
- Method name
- Method version date
- Colony class
- Counted colonies
- Concentration
- Counted volume
- Class mark color
- Comments
- Inoculation mode
- Inoculation volume
- Dilution factor
- Plate diameter
- Excluded area
- Minimum and maximum size (for the CFU)
- AI Score and Device S/N.

When a row is selected, the corresponding image will be displayed in the image viewer. Right-click on one or more cloud results in the table to access the contextual menu:



Export data:	A file browser opens to export selected results with the desired format (XLSX: Excel, CSV: Comma-delimited, and TXT: Tab delimited).
Export data and images:	Same as Export data, but a sub-folder is created containing the associated images (captured and processed). Image file names correspond to those defined in each result.
Print report:	A dialog opens to select the result parameters to be included in the report. The report is generated with one page per processed plate and includes captured and processed images.
Print reviewed report:	Same as Print report, but also includes a box for document number and signature boxes for the operator and supervisor.
Print statistical report:	Requires multiple selections with the same class name. A dialog opens to select the result parameters that will be included in the report to be printed. It will contain average value, standard deviation, and coefficient of variation.
Print reviewed statistical report:	Similar to Print statistical report, but also includes fields boxes for document number, signature and date for the operator and supervisor.
Print table:	Print a table with all the parameters for the selected rows.
Copy to clipboard:	Copy all parameters of the selected results to the clipboard and then paste them into a document.
Clear filter:	Remove all active filters from the table.

NOTE: For report and table generation options, a dialog opens to modify the 'Report Title' and select the result parameters (from 'Report Fields') to be included. The footer of printed reports displays the user name, date, and time of printing. If a virtual PDF printer is selected, reports can be saved as PDF files. If opened in a compatible application, digital signatures can be applied.

3.5.3. Template Methods

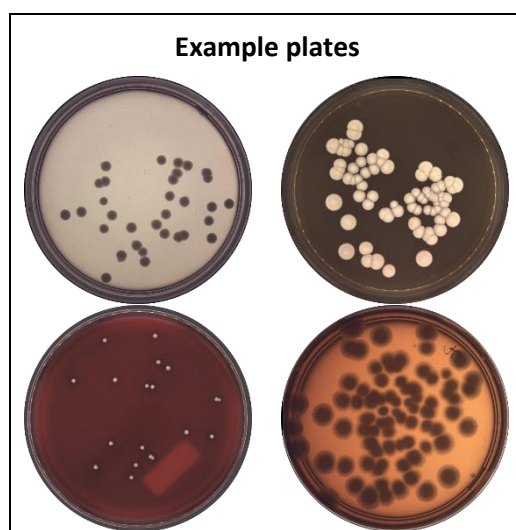
The SphereFlash® AI Colony Counting Software includes general-purpose methods, referred to as template methods, which cover common plate appearances and are ready to use.

The template methods can be used as a base to create custom methods (see section 3.5.4. Method settings for more detailed information).

The following templates are natively included within the software:

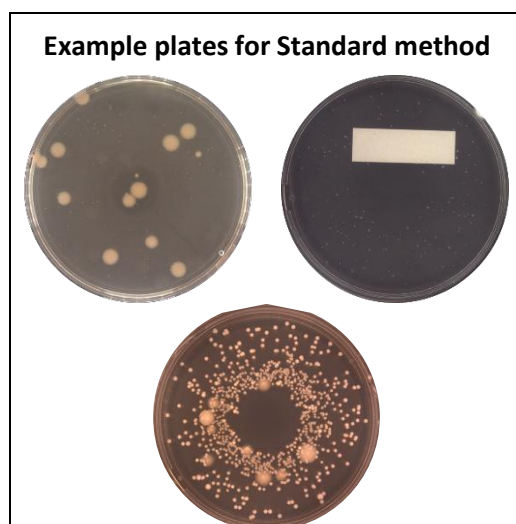
Conservative: Recommended for most plate types and routine colony counting applications. Generally provides the most robust performance for plates containing:

- Low to moderate overlapping colonies
- Medium or large colonies
- Colonies with irregular or fuzzy edges



Standard: Recommended only for specific plate conditions where colony detection is more challenging. Typical applications include:

- High overlapping colonies
- Very small colonies
- Colonies with well-defined and rounded edges



Each AI template method is available with different illumination configurations. The appropriate illumination mode depends on the appearance of the colonies and the culture medium.

Reflected lighting (Upper illumination):	Provides diffused, homogeneous reflected light — similar to darkfield illumination — enhancing contrast and edge definition for accurate colony detection. This illumination mode is mainly used to visualize opaque colonies by highlighting their edges and contrast. It illuminates the plate from above and allows differentiation of colonies from artifacts based on appearance (color or brightness), as well as discrimination between different colony classes.
Transmitted lighting (Bottom illumination)	Provides uniform transmitted light from beneath the plate, making it ideal for visualizing low-contrast or transparent colonies. If the colonies are opaque and the substrate is sufficiently translucent, bottom illumination can also enable accurate colony detection and counting, particularly in the absence of opaque artifacts.
Both (Combined illumination)	Combines reflected and transmitted illumination and may provide improved performance for difficult plates where neither illumination mode alone gives optimal results.

3.5.4. Methods Settings

The Method Settings panel allows you to create, edit, and manage counting methods used by the SphereFlash® AI Colony Counting Software.

Method Definition

Common values

Method Name: Standard AI Reflected

Method Description: Template

Delete Method

Classes | Image capture | Option settings

Class 1

Colony Class ID: Class 1

Class Mark Color: RGB = (255, 0, 0)

Count Mode: Filtered by size

Accept colors: none

Reject colors: none

Min. CFU Size (mm): 0.10

Max. CFU Size (mm): 15.00

Counted Limits: Lower Upper

Warning Alarm

CFU/ml Limits:

Result

Excluded Area (%): 0.01 %

Colony Class	Counted Colonies	Concentration (CFU/ml)	Counted Volume (ml)
Class 1	178	1.78E+003	1.000

Only users with Tenant-admin or Administrator role can access this panel.

The software is provided with a set of predefined AI methods, designed to cover the most common use cases. These methods are ready for use and can also serve as templates for creating new methods.

The Method Settings panel can be accessed in two ways:

- After processing a plate, click on the Method Settings button to edit the method applied to the current processed image
- Under the 'Colony Counting' menu, click on the Method Settings button to exclusively adjust image capture and option settings that apply independently of a specific plate.

When accessed after image processing, the processed plate image is used only to visualize and test the effect of the method settings during editing.

IMPORTANT: Images used during method editing are not stored as cloud results and will be lost when the session is closed.

When the Method Settings button is selected, the Method Settings panel is displayed in the Control Panel area.

The Method Settings panel is organized into several sections:

- Common Values
- Classes tab
- Image Capture tab
- Option Settings tab
- Results
- Functional buttons

Common Values

Method Name (drop-down list and input box): Select the AI template method to be edited. Enter a new name to create a modified version.

Method Description (input box): Provide a detailed description of the method, including its intended use or key characteristics.

Delete Method (button): Permanently delete the current method.
NOTE: Default template methods cannot be deleted.

Tabs available:

Classes: Configure settings for the colony classes defined in the method. See section 3.5.4.1. *Classes tab* for more details.

Image capture: Adjust parameters that affect the entire image capture process. See section 3.5.4.2. *Image capture tab* for more details.

Option settings: Configure visual overlay parameters and control the availability of settings when the method is used in the 'Colonies Counting' screen. See section 3.5.4.3. *Option setting tab* for details.

Functional buttons



Run Click to capture and process a new image to test the method when the SphereFlash® instrument is connected. Right-clicking the button allows selection of an image file (PNG format) for processing.

NOTE: If the 'Start WITHOUT SphereFlash® device' option is active, this will open a file browser to select an image for processing.



Save Save the current method. Once saved, the new method appears in the Methods list in the 'Colony Count Data' tab.

3.5.4.1. Classes tab

The 'Classes' tab organizes settings for different colony classes associated with the method. Each class has its own tab, and there are additional controls for managing these tabs. Within each class tab, you can configure the following settings: Colony Class ID, Class Mark Color, Count Mode, Counted Limits, and CFU/ml Limits.

ClassesImage captureOption settings

Class 1

Colony Class ID

Class 1

Class Mark Color

RGB = (255, 0, 0)

Count Mode

Filtered by size

Accept colors

none

Reject colors

none

Min. CFU Size (mm)

0.10

Max. CFU Size (mm)

15.00

Counted Limits:

Lower

Upper

CFU/ml Limits:

Warning

Alarm

Classes tab fields

Colony Class ID (input box): Edit the name of the class, which will also appear on its tab label.

Class Mark Color (button): Set the visual marker color of the center of each colony.

Count Mode (drop-down list): Determine the classification criteria for colonies: either "Filtered by color" or "Filtered by size". Each class in a method shares the same count mode setting.

Counted Limits (input fields): Set the lower and upper count limits. Colony counts outside these limits are highlighted in red, and the text <<Overcount warning for Class 1>> or <<Undercount warning for Class 1>> will be automatically appended to the *Comments* field on the cloud result stored. These limits are required by certain protocols to guarantee that the count is statistically significant.

	Lower	Upper	Colony Class	Counted Colonies	Concentration (CFU/ml)
Counted Limits:	30	300	✖ Class 1	585	5.85E+003

CFU/ml Limits (input fields): Define warning and alarm CFU/ml threshold values.

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- Concentration below the warning limit is highlighted in white:

CFU/ml Limits:	Warning	Alarm	Colony Class	Counted Colonies	Concentration (CFU/ml)
	6.00E2	9.00E2			
			✖ Class 1	19	1.90E+002

- Concentration between the warning and alarm limits is highlighted in yellow:

CFU/ml Limits:	Warning	Alarm	Colony Class	Counted Colonies	Concentration (CFU/ml)
	6.00E2	9.00E2			
			✖ Class 1	70	7.00E+002

- Concentration exceeding the alarm limit is highlighted in red:

CFU/ml Limits:	Warning	Alarm	Colony Class	Counted Colonies	Concentration (CFU/ml)
	6.00E2	9.00E2			
			✖ Class 1	430	4.30E+003

- If an opposite behavior is required (i.e. warning or alarm triggered when the concentration is below a limit), enter an Alarm limit value **lower** than the Warning limit value:

CFU/ml Limits:	Warning	Alarm	Colony Class	Counted Colonies	Concentration (CFU/ml)
	9.00E2	6.00E2			
			✖ Class 1	19	1.90E+002

Count Mode: Filtered by color

Accept colors: Allows the selection of colony colors to be accepted for counting.

Reject colors: Allows the exclusion of specific colony colors from counting

Count Mode: Filtered by size

Min. CFU Size: Sets the minimum size (in millimeters) for colonies to be included in the count.

Max. CFU Size: Sets the maximum size (in millimeters) for colonies included in the count.

Functional buttons



Plus

Add a new colony class. A new colony class tab is created using the same Count Mode (*Filtered by color* or *Filtered by size*) as the currently selected colony class.



Minus

Remove selected colony class. This will delete the currently active colony class tab.

When a colony count is performed using a method with multiple classes:

Colonies are outlined and marked with the color corresponding to their class in the Image Viewer. Results are displayed separately for each colony class. When the result is accepted, multiple rows are generated in the Data Panel for the same Plate ID, one for each colony class.

3.5.4.1.1. Count mode: Filter by Color

If multiple colonies with distinct colors are present on a single plate, the 'Filtered by Color' Count Mode allows you to selectively include or exclude colonies based on their color. In addition, colonies of different colors can be categorized into distinct classes.

With a plate image loaded, click "Accept Colors" and then select the colony colors you want to include. To exclude colors, click "Reject Colors" and select the colony colors to be excluded.

NOTE: Select only one or a few representative colonies for both Accept Colors and Reject Colors. There is no need to click on every colony on the plate.

NOTE: The Reject Colors field is optional and is intended to prevent undesired counts. By default, no rejected colors are defined

Accepted and/or rejected colours will appear in the box next to the 'Accept colours' or 'Reject colours' button, respectively. In case there are no accepted and/or rejected colours, the box next to it will show the word 'none' in red.

To access additional options, right-click on the 'Accept colors' or 'Reject colors' box. This will open a menu with several actions you can perform (depending on the selected box):

Clear All:	Clear all accepted or rejected colors.
Accept All:	Accept all colors. The colours will appear in the 'Accept colors' box, even those previously selected in the 'Reject colors' box. The 'Reject colors' box will become empty.
Reject All:	Reject all colors. The colours will appear in the 'Reject colors' box, even those previously selected in the 'Accept colors' box. The 'Accept colors' box will become empty.
Merge all (if there is more than 1 acceptable/rejected color in the box):	Blend all selected colors together to create one unified color.
Accept layer (if at least 1 color is rejected):	Accept the selected rejected color. The new accepted color will appear the 'Accept colors' box.
Reject layer (if at least 1 color is rejected):	Reject the selected rejected color. The new rejected color will appear the 'Reject colors' box.

If necessary, more colony classes can be added. If a new class is added, the 'Filtered by Color' count method will be set automatically and cannot be changed.

3.5.4.1.2. Count mode: Filter by Size

If multiple colonies with distinct sizes are present on a single plate, the 'Filtered by Size' Count Mode allows you to selectively include or exclude colonies based on their size. In addition, colonies of different size can be categorized into distinct classes.

The size range for each colony can be set by defining the minimum and maximum CFU size.

3.5.4.2. Image capture tab

The 'Image capture' tab allows adjusting parameters that affect the entire image capture process. The parameters in this tab apply only if plate images are taken using the SphereFlash® instrument.

The screenshot shows the 'Image capture' tab with the following parameters and values:

Parameter	Value
Lighting Mode	Reflected Light
Automatic exposure time	☐
Exposure Time (ms)	0.0
Plate Diameter (mm)	90.00
Counted Diameter (mm)	90.00
Image OffX (mm)	0.00
Image OffY (mm)	0.00
AI Score (%)	75

Lighting Mode
(drop-down list): Select the lighting options ("Reflected light", "Transmitted light" or "Both lights") used to illuminate the plate.

Automatic exposure time
(checkbox): Enable automatic adjustment of exposure time for each image capture (in milliseconds). When enabled, the optimal exposure time is automatically determined for each plate.

Exposure Time (ms): Set the manual exposure time for the camera of the SphereFlash® instrument when capturing new images (in milliseconds). This parameter controls the overall image brightness.

Plate Diameter (mm): Indicate the inner diameter of the plate (inner distance between the lateral walls), within which the inoculated volume has been spread.

Counted Diameter (mm): Define the default diameter of the area within which the colonies will be counted.

Image OffX (mm): Set the horizontal offset between the center of the image and the center of the plate.

Image OffY (mm): Set the vertical offset between the center of the image and the center of the plate.

NOTE: Automatic calibration procedure and the auto-centering device of the instrument will ensure that the prescribed center of the circles matches the actual center of the plate so that for normal plates there is no need to introduce any offset.

AI Score (%): Set the default AI score that controls the balance between sensitivity and specificity for colony detection.

3.5.4.3. Option settings tab

The 'Option settings' tab allows users to set parameters of the overlay drawings and manage the availability of other settings when the method is used in the 'Colonies Counting' menu:

There are two groups: 'Drawing' and 'Run Editable Values'. The 'Drawing' section includes parameters related to the markings on the captured images after image processing. While the 'Run Editable Values' section defines the parameters that can be edited by the Operator during colony counting when using a specific method. For each parameter, the method defines whether it is editable (using the checkbox) and, where applicable, the default value (input box or drop-down list).

Drawing

Plate Limits (button): Choose the color of the plate diameter circle from the predefined color palette.

Counted Limits (button): Choose the color of the counted area circle from the predefined color palette.

Spiral Grid (button): Choose the color of the spiral grid circles (for the spiral distribution) from the predefined color palette.

Line Thickness: Adjust the line thickness for all the overlays, including center of each counted colony.

NOTE: The color of the center and borders of counted colonies are defined for each.

Run Editable Values

Inoculation Mode (checkbox and drop-down list): Editable status and default inoculation mode.

Inoculated Volume (checkbox and input box):	Editable status and default volume.
Dilution Factor (checkbox and input box):	Editable status and default dilution factor.
AI Score (checkbox):	Editable status.
CFU Size (checkbox):	Editable status.
Plate Diameter (checkbox):	Editable status.
Interactive Colony Counting (checkbox):	Editable status for interactive actions in the Image Viewer, including adding or removing colonies, modifying counting areas, or adjusting the counted diameter.
Auto-increment Plate ID (checkbox):	Editable status for automatic incrementation of the Plate ID (for images taken using the SphereFlash® instrument). If the Plate ID does not end with a number, "1" is added. This number is then incremented for subsequent images only if the Plate ID remains unchanged.

3.6. Verification (for the SphereFlash® instrument)

The following section covers the verification process if the SphereFlash® instrument is used for capturing images.

Verification ensures accurate colony counting by the SphereFlash® instrument and it may be required when the instrument is detected for the first time or as part of a routine schedule defined by the user.

Verification is carried out using the verification disk (Cat. No. 90004113), which simulates colonies of 3 different sizes (1, 2 and 3mm). The disk has two sides:

- Black colonies on a white background
- White colonies on a black background



Follow these steps to perform the verification process:

1. Select Verification from the Control Panel.
2. Place the centering device (Ø 87–91 mm) on the instrument platform, followed by the verification disk with the desired disk side facing up.
3. When the Verification panel is displayed, select the corresponding option:
 - Black Colonies on White Background, or
 - White Colonies on Black Background.
4. Click the Run button (▶).

The instrument captures an image of the verification disk and displays the results, with colony counts grouped into predefined size classes:

Verification

Imaging Device

Last Calibration Date

Due Calibration Date

Last Verification Date

Due Verification Date

Verification Data

☒ Black Colonies on White Background
☐ White Colonies on Black Background

Admissible Results (Test Plate)

1 mm: 169 - 189
2 mm: 153 - 163
3 mm: 120 - 126

Colony Class	Counted Colonies
1 mm Count	179
2 mm Count	158
3 mm Count	122

If all counts are within the expected ranges, select Accept to save the result to the cloud and finalize the verification. Select Reject to discard the results.

If the count for any size class falls outside the expected range, the corresponding result box is highlighted in red as a warning.

NOTE: Users with Tenant-admin and Administrator roles have the capability to set the verification frequency and decide if reminders for verification should be shown after the set period has expired.

3.6.1. Verifications data panel

All verifications stored for the current group are displayed in the :

Verifications								
Creation Date (UTC)	Created By	Method Name	Method Version Date (UTC)	Colony Class	Counted Colonies	Class Mark Color	Comments	Min. Size (mm)
2026/04/30 09:04	example@email.com	TEMPLATE_Conservative_AI_BlackOnWhite	2023/11/21 10:19	1 mm Count	179		<<Admissible Results (Test Plate): 1 mm: 169 - 189, 2 mm: 153 - 163...	0.80
2026/04/30 09:04	example@email.com	TEMPLATE_Conservative_AI_BlackOnWhite	2023/11/21 10:19	2 mm Count	158		<<Admissible Results (Test Plate): 1 mm: 169 - 189, 2 mm: 153 - 1...	0.80
2026/04/30 09:04	example@email.com	TEMPLATE_Conservative_AI_BlackOnWhite	2023/11/21 10:19	3 mm Count	124		<<Admissible Results (Test Plate): 1 mm: 169 - 189, 2 mm: 153 - 163...	0.80

Each verification generates 3 entries, one for each colony size class (e.g. 1 mm, 2 mm, 3 mm). Although these entries correspond to the same processed image, they differ in:

- Colony Class (e.g. 1 mm, 2 mm, 3 mm)
- Number of counted colonies (169 - 189, 153 - 163, or 120 - 126)

- Class mark color (e.g. Blue, Lime, Red) assigned to that specific size class.

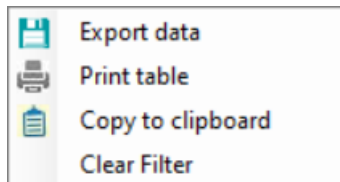
This means that a single verification run will appear as several rows in the Data Panel, one per colony size class.

Each verification result includes the following information:

- Creation date
- Created By
- Device S/N
- Method Name either *TEMPLATE_Conservative_AI_BlackOnWhite* or *TEMPLATE_Conservative_AI_WhiteOnBlack*, depending on which side of the verification disk was used)
- Method Version Date
- Colony Class (e.g. 1 mm, 2 mm, 3 mm)
- Counted Colonies
- Class Mark Color
- Comments
- Minimum and maximum size (for CFU classification)
- AI Score

The Comments section shows the admissible results for the plate test "<<Admissible Results (Test Plate): 1 mm: 169 - 189, 2 mm: 153 - 163, 3 mm: 120 - 126>>".

Right-click on one or more verification results in the table to access the contextual menu:



- | | |
|---------------------------|--|
| Export data: | A file browser opens to export selected calibration results with the desired format (XLSX: Excel, CSV: Comma-delimited, and TXT: Tab delimited). |
| Print table: | Print a table with all the parameters. |
| Copy to clipboard: | Copy all parameters of the selected results to the clipboard and then paste them into a document. |
| Clear filter: | Remove all active filters from the table. |

3.7. Calibration (For the SphereFlash® instrument)

The following section covers the calibration process if the SphereFlash® instrument is used for capturing images.

Calibration ensures that the SphereFlash® instrument operates with accurate positioning, scaling, and illumination. It may be required when a SphereFlash® instrument is detected for the first time or as part of a routine schedule defined by the user.

Calibration is performed using the calibration disk (Cat. No. 900010081).



Follow these steps to perform the calibration process:

1. Select Calibration from the Control Panel.
2. Place the centering device (Ø 87–91 mm) on the instrument platform, followed by the calibration disk.
3. Click the Run button (▶).

The SphereFlash® instrument performs multiple image captures to automatically adjust image centering, dimensional scaling, and illumination settings, the final processed result is displayed in the application:

Calibration
✕

Imaging Device

Last Calibration Date	2024/03/25 08:33
Due Calibration Date	2024/06/23 08:33

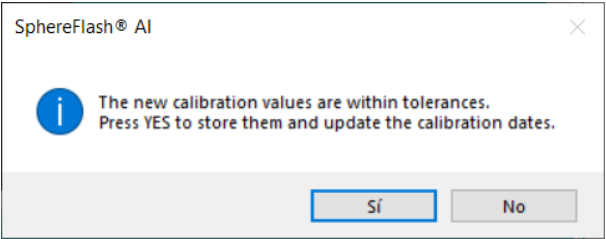
Plate Position

Offset X (mm)	0.502	limit: ± 2 mm
Offset Y (mm)	-0.860	limit: ± 2 mm
Offset Z (mm)	-2.026	limit: ± 6 mm

▶
✓
✕

Once completed, an image of the calibration disk is displayed in the Image Viewer. This image may be used only for a visual verification of the calibration disk geometry, including the correct alignment and concentricity of the reference circles.

If calibration is successful, a prompt is displayed requesting confirmation to accept the calibration results:



If the calibration results fall outside the acceptable range, contact Technical support for assistance.

NOTE: Users with Tenant-admin and Administrator roles have the ability to set how frequently calibration should be performed. They can also activate reminders that will notify users when it's time to recalibrate the instrument after a certain period has elapsed.

3.7.1. Calibrations data panel

All calibrations stored for the equipment are displayed in the 'Browse Views' > 'View' > Calibrations:

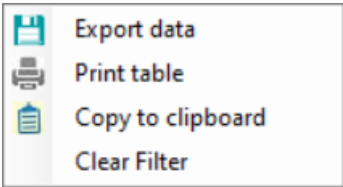
Calibrations						
Creation Date (UTC)	Created By	Device S/N	Offset X (mm)	Offset Y (mm)	Offset Z (mm)	Comments
2026/01/14 10:34	example@email.com	10007000/0016	-0.281	0.620	2.319	<<Limits (OffsetX OffsetY OffsetZ)mm: (2.00 2.00 6.00)>>
2026/01/14 10:30	example@email.com	10007000/0016	-0.281	0.620	2.319	<<Limits (OffsetX OffsetY OffsetZ)mm: (2.00 2.00 6.00)>>
2026/01/14 10:29	example@email.com	10007000/0016	-0.304	0.596	2.305	<<Limits (OffsetX OffsetY OffsetZ)mm: (2.00 2.00 6.00)>>
2024/10/29 15:15	example@email.com	10007000/0016	-1.552	-1.085	2.782	<<Limits (OffsetX OffsetY OffsetZ)mm: (2.00 2.00 6.00)>>

Each calibration result includes the following information:

- Creation date
- Created By
- Device S/N
- Offset X
- Offset Y
- Offset Z
- Comments

The Comments section shows the admissible limits "<<Limits (OffsetX| OffsetY| OffsetZ)mm: (2.00|2.00|6.00)>>".

Right-click on one or more calibration results in the table to access the contextual menu:



Export data: A file browser opens to export selected calibration results with the desired format (XLSX: Excel, CSV: Comma-delimited, and TXT: Tab delimited).

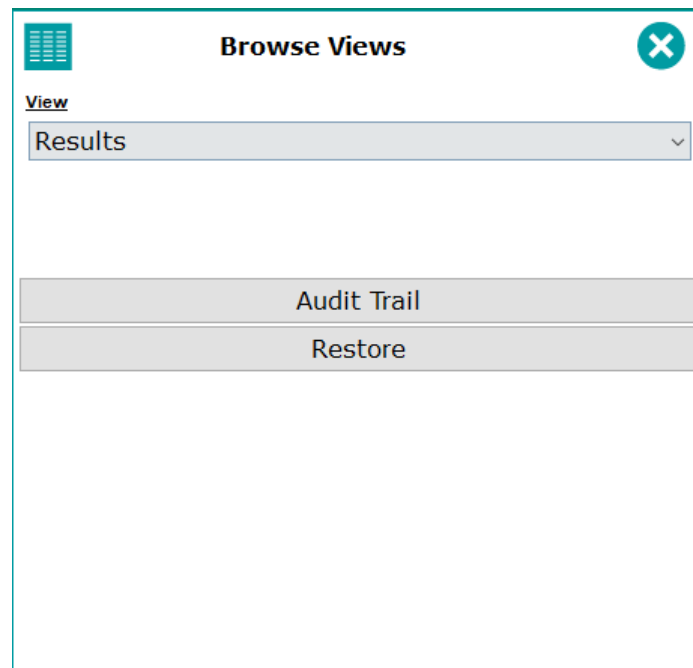
Print table: Print a table with all the parameters.

- Copy to clipboard:** Copy all parameters of the selected results to the clipboard and then paste them into a document.
- Clear filter:** Remove all active filters from the table.

3.8. Browse Views

The Browse Views menu provides access to stored cloud data, allowing the user to browse, review, export, and manage results, methods, calibrations, and verifications.

When clicking on 'Browse Views' in the main menu, it displays the following panel in the Control panel area:



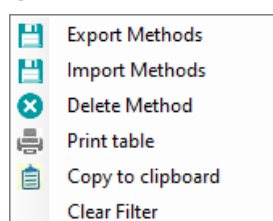
At the top, the 'View' drop-down list allows you to select which table to display in the Data panel. The available options are Results, Results Summary, Methods, Calibrations, and Verifications.

3.8.1. Methods

The 'Methods' table displays the complete set of parameters associated with each stored method:

- Method
- Description
- Operator
- Created Time
- UTC Created time

In the "Methods" table, the following actions are available when the table is right-clicked:



Export Methods:	A file browser opens to export selected methods in XML format. The exported method file will be named after the method name.
Import Methods:	Delete the selected methods. NOTE: Only available with Tenant-admin and Administrator role.
Delete Method:	Delete the selected methods. NOTE: Only available with Tenant-admin and Administrator role.
Print table:	Print a table with all the parameters for the selected rows.
Copy to clipboard:	Copy all parameters of the selected row to the clipboard and then paste them into a document.
Clear filter:	Remove all active filters from the table.

3.8.2. Results and Results Summary

The “Results” table displays the complete set of parameters associated with each stored cloud result, as described in previous sections

The “Results Summary” table provides a simplified view of the cloud results, displaying a reduced set of columns for quick review:

- Creation date
- Plate ID
- Method name
- Method version date
- Colony class
- Counted colonies
- Concentration
- Comments

In the “Results” and “Results Summary” tables, the same contextual menu options described in previous sections are available when right-clicking on the table.

3.8.3. Verification and Calibration

In the “Verifications” and “Calibrations” tables, the same contextual menu options described in the previous sections.

3.8.4. Stored Data

For users with Tenant-admin and Administrator roles, the following options are available in the Browse Views panel:

- **Audit Trail:** Review results and methods currently stored in the cloud or from retention files, from the current group.
- **Restore:** Upload retained data (Retention files) and make it available in the Audit Trail.

The software automatically creates retention data locally when:

- Results are stored
- Methods are created or modified

These files preserve historical data for traceability and audit purposes. Retention folders are stored locally in the configured path, by default is:

C:\ProgramData\IUL\SphereFlashAI\Retention

Every sub-folder includes:

- results.rst
- methods.rst

IMPORTANT: Do not rename retention files (results.rst or methods.rst). Renaming will prevent a successful upload.

WARNING: If the retention file cannot be accessed or updated, the application will be blocked until access is restored or a valid alternative folder is configured.

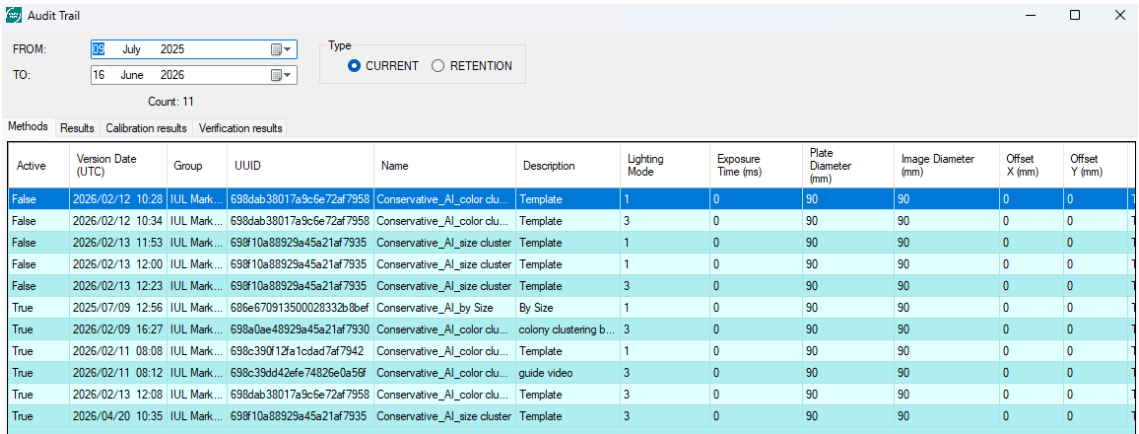
NOTE: When a retention file reaches 512 MB, a new sub-folder is automatically created. Sub-folders are named based on timestamps.

3.8.4.1. Audit trail window

This section is accessible only to users with Tenant-admin and Administrator role.

The Audit Trail is a historical record of all actions and modifications performed by users within the application. Audit Trail functionality may be required under certain regulatory frameworks, such as FDA 21 CFR Part 11 Subpart B.

To access the 'Audit Trail', open the 'Browse views' menu and click on the button 'Audit Trail'. A window containing multiple tabs is displayed:



Active	Version Date (UTC)	Group	UUID	Name	Description	Lighting Mode	Exposure Time (ms)	Plate Diameter (mm)	Image Diameter (mm)	Offset X (mm)	Offset Y (mm)
False	2026/02/12 10:28	IUL Mark...	698dab38017a9c5e72af7958	Conservative_AI_color clu...	Template	1	0	90	90	0	0
False	2026/02/12 10:34	IUL Mark...	698dab38017a9c5e72af7958	Conservative_AI_color clu...	Template	3	0	90	90	0	0
False	2026/02/13 11:53	IUL Mark...	698f10a88929a45a21af7935	Conservative_AI_size cluster	Template	1	0	90	90	0	0
False	2026/02/13 12:00	IUL Mark...	698f10a88929a45a21af7935	Conservative_AI_size cluster	Template	1	0	90	90	0	0
False	2026/02/13 12:23	IUL Mark...	698f10a88929a45a21af7935	Conservative_AI_size cluster	Template	3	0	90	90	0	0
True	2025/07/09 12:56	IUL Mark...	686e670913500028332b8bef	Conservative_AI_by Size	By Size	1	0	90	90	0	0
True	2026/02/09 16:27	IUL Mark...	698a0ae48929a45a21af7930	Conservative_AI_color clu...	colony clustering b...	3	0	90	90	0	0
True	2026/02/11 08:08	IUL Mark...	698c390f12fa1cdad7af7942	Conservative_AI_color clu...	Template	1	0	90	90	0	0
True	2026/02/11 08:12	IUL Mark...	698c39dd42efe74826e0a59f	Conservative_AI_color clu...	guide video	3	0	90	90	0	0
True	2026/02/13 12:08	IUL Mark...	698dab38017a9c5e72af7958	Conservative_AI_color clu...	Template	3	0	90	90	0	0
True	2026/04/20 10:35	IUL Mark...	698f10a88929a45a21af7935	Conservative_AI_size cluster	Template	3	0	90	90	0	0

Records can be:

- **Sorted** by clicking on a column header
- **Filtered by date and time** using the **Time From** and **Time To** fields.

The following tabs are available:

Methods: Record events related to the method creation, edition, modification, and deletion. Includes the following information: Active (whether the method is currently enabled for use), Version Date (UTC), Group, UUID (unique identifier assigned to the method version), Method Name, Description, Lighting Mode (1=Reflected_Light ; 2=Transmitted_Light ; 3=Both_Lights)

Exposure Time (ms), Plate Diameter (mm), Image Diameter (mm), Offset values (mm), enabled configuration parameters, inoculation settings, dilution settings, AI score threshold, and other method configuration parameters (true or false).

Results Record stored result information and associated operation parameters. Includes the following information: Group, Device S/N, Created By (User Name), Creation Date (UTC), Plate ID, Comments, Method Name, Method Version Date (UTC), Plate Diameter (mm), Dilution Factor, Inoculation Mode, Inoculated Volume (mL), AI Score Threshold (%), Minimum and Maximum colony size (mm), excluded area auto (%) and excluded area (%).

Calibration Results: Display the results of calibration operations performed on the SphereFlash® instrument. Includes the following information: Creation Date (UTC), Creation Date, Created By (user name), Device S/N, Offset X, Offset Y, Offset Z, transmitted illumination calibration values (T. Red level, T- intensity, T- Blue level), and reflected illumination calibration values (R. Red level, R. intensity, R. Blue level).

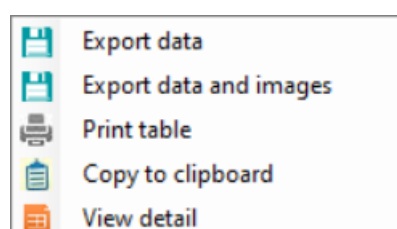
Verification Results: Display the results of verification operations. Includes the following information: Group, Device S/N, Created By, Creation Date (UTC), Plate ID, Comments, Method Name, Method Version Date (UTC), and AI Score Threshold (%).

The tables 'Methods', 'Results' and 'Verification results' also have two different 'Types' of displayed data:

- A. CURRENT:** Displays all the available data of the current group that is stored in the cloud, from all users. With this option, the maximum number of displayed results (including items from 'Results' and 'Verification results' tables), is the results limit of the current group (dictated by the number of Cloud results made available to the group by the tenant-admin). When the limit is surpassed, the oldest result will be removed from this view.
- B. RETENTION:** Displays data contained in retention files that have been previously uploaded using the Restore function.

This allows separation between active cloud data and historical retained data, as required for audit and regulatory review.

Right-clicking on an Audit Trail table displays a contextual menu with the following options (depending on the table):



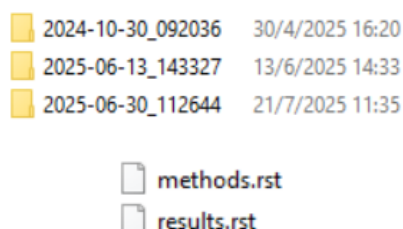
Export data: A file browser opens to export all displayed parameters of the selected rows with the desired format (XLSX: Excel, CSV: Comma-delimited, and TXT: Tab delimited).

Export data and images:	Similar to the above, but also includes related images (both captured and processed). Only available for 'Results' table.
Print table:	Print a table with all the parameters for the selected rows.
Copy to clipboard:	Copy all parameters of the selected row to the clipboard and then paste them into a document.
View detail:	An Audit Trail Details window opens with all available data related to the selected item. Only available for 'Methods', 'Results' and 'Verification results' tables.

3.8.4.2. Restore window

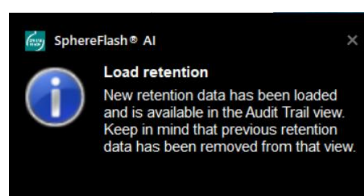
To review retained data for audit purposes, the user must use the Restore function.

1. Selecting Restore opens a file browser opens to select and upload a retention file from the current directory (default is *C:\ProgramData\IUL\SphereFlashAI\Retention*) to the cloud:



NOTE: The file name of the retention files (results.rst or methods.rst) should not be edited, as this will cause the upload to fail.

2. Once uploaded, the data contained in the selected retention files becomes available in the Audit Trail window, under the Retention view. After the restore process is completed, a confirmation pop-up is displayed.



3.9. Application Parameters

This menu enables the Tenant-admin or Administrator role to customize and modify the settings of the SphereFlash® AI Desktop Application.

It contains the following items:

System Options

(button):

Access the 'System Options' panel.

Barcode Reader

(button):

Access the configuration of the barcode reader serial interface. Fill in or select the proper values according to the barcode reader manufacturer's indications.

You can find the port name where the reader is connected to the computer using the PC Windows *Device Manager* dialog.

Language (drop-

down list):

Select the application language among those available.

NOTE: To apply language changes, you must restart the SphereFlash® AI Colony Counting Software desktop application.

Date/Time Format

(button):

Displays the 'Date & Time Format Selector' dialog:

- Date format: DMY, MDY, or YMD
- Date separator: /, ., ,, or space
- Time format: 12-hour or 24-hour

A dialog box titled "Date & Time Format Selector" with a close button (X) in the top right corner. It contains three dropdown menus: "Date format:" (empty), "Date separator:" (showing "/"), and "Time format:" (showing "24"). Below these is a preview of the date and time: "2026/02/05 12:18:46". At the bottom are "OK" and "Cancel" buttons.

Camera S/N (text box): Displays the serial number of the camera in the detected SphereFlash® instrument.

Device IP (text box): Displays the Internet Protocol address assigned to the detected SphereFlash® instrument.

Device S/N (text box): Displays the serial number of the detected SphereFlash® instrument.

NOTE: If the Desktop Application is started without a SphereFlash® instrument connected, this field will indicate 'NoDevice'

3.9.1. System Options panel

The 'System options' panel enables configuration of operational settings and application preferences.

A screenshot of the "Application Parameters" window, specifically the "System Options" tab. The window has a title bar with a close button (X) and a refresh button. The "System Options" section includes:

- "Time until suspend by inactivity (minutes)" with a value of 999.
- Checkboxes for "Require calibration when expired" and "Require verification when expired", both unchecked.
- "Calibration interval (days)" with a value of 30.
- "Verification interval (days)" with a value of 60.
- "List separator" section with a checked box for "Get list separator from system" and a text input field containing a comma (",").
- "Retention folder" section with a text input field for "Retention folder path" containing "C:\ProgramData\IUL\SphereFlashAll\Retention".
- "Remote output folder" section with an unchecked box for "Remote output enabled", a checked box for "Include images", and an empty text input field for "Remote output folder path".
- "Value Limits" section with input fields for "Inoculated Volume (mL)" (0.001 to 1000) and "Dilution Factor" (1 to 10000000000).

It contains the following items:

Time until suspend by inactivity (input box): Enter the delay time in minutes before the application logs out due to inactivity.

Require calibration when expired (checkbox):	Block the 'Colonies Counting' and 'Verification' screens when the calibration is out of date.
Calibration interval (input box):	Enter the number of days that the calibration remains valid. If 'Require calibration when expired' is enabled and the current calibration has expired, a pop-up warning will be displayed at every attempt to access 'Colonies Counting' and 'Verification'. Additionally, the comment <i><<Calibration is needed>></i> is always added to 'Comments' when a result is saved with an expired calibration.
Require verification when expired (checkbox):	Block the 'Colonies Counting' screen when the verification is out of date.
Verification interval (input box):	Enter the number of days that the verification remains valid. If 'Require verification when expired' is enabled and the current verification has expired, a pop-up warning will be displayed at every attempt to access 'Colonies Counting'.
List separator:	
Get list separator from system (checkbox):	Enable the application to get the list separator character from the operating system, and later use it in the exported CSV files.
Use this char as a list separator (input box):	Enter the desired character to use as a list separator in the CSV files.
Retention folder:	
Retention Folder Path (button and text box):	Enter and display the folder path where retention files are automatically saved. This field is mandatory.
Remote output folder:	
Remote output enabled (checkbox):	Enable the automatic output of the stored cloud results in XML format. NOTE: When it is not possible to save the XML result file in the remote output folder (due to access or permission issues), the application will be blocked until the folder is accessible or an alternative folder is supplied.
Include images (checkbox):	Include images in the exported XML result files.
Remote output folder path (button and text box):	Enter and display the folder path where the results files will be automatically saved. The chosen path will appear in the box.
Value Limits:	

Inoculated Volume (two input boxes): Enter the minimum and maximum values to use as sample inoculated volume within the scope of the application.

Dilution Factor (two input boxes): Enter the minimum and maximum values to use as dilution factors within the scope of the application.

NOTE: This limitation helps minimize the risk of entering illogical values that could lead to incorrect results. This safety measure may be required by certain regulatory frameworks.

3.9.1.1. Interfacing with a LIMS

The SphereFlash® AI Colony Counting Software can automatically provide results data to a corporate network with a LIMS.

To implement this feature, the following subjects must be addressed:

- a. A folder has to be designated to share the results data with the LIMS; it may be located either in the computer containing the application or in a server reachable through the network.
- b. The PC systems administrator must grant the proper access permissions to the folder by the SphereFlash® AI Colony Counting Software as well as the LIMS system.
- c. The PC systems administrator must ensure the rules of privacy and restricted access to the data in this folder, as mandated by the company policies and any regulatory framework that may be applicable.
- d. In the System Options panel, activate the 'Remote output enabled' option, and optionally the 'Include images' option.
- e. In the System Options panel, define the 'Remote output folder path' as the designated folder.
- f. The LIMS must collect from the designated folder each XML file that appears after saving a result, interpret it, and transfer the data to its database.
- g. The LIMS should delete the files corresponding to the results it has already processed, from the designated folder.

The file names of the exported results will be composed by:

- The 'Plate ID' of the result.
- The underscore character "_".
- A timestamp of the exportation time coded as YYYYMMDDhhmmssfff, where
 - YYYY→year
 - MM→month
 - DD→day
 - hh→hour
 - mm→minute
 - ss→second
 - fff→millisecond
- The extension of the file ".xml".

Example of a remote output file example:

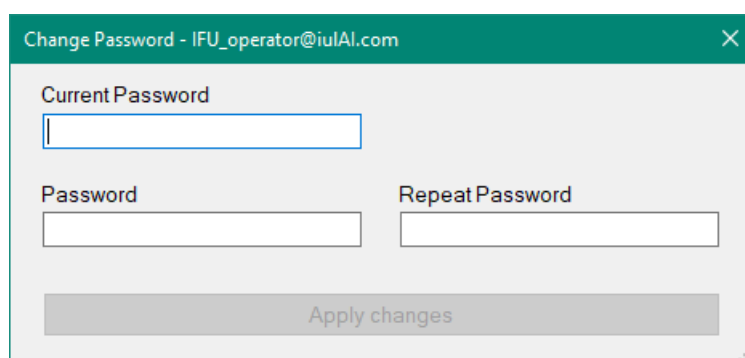
File name: "sample R57_20240429102433723.xml".

Content (without image):

```
<?xml version="1.0" standalone="yes"?>
<Result>
  <ClassResult>
    <Id>662f7561ffff8d5c3f169b35</Id>
    <CreatedUTC>2024-04-29T10:24:33.723Z</CreatedUTC>
    <CreatedBy>IFU_operator@iulAI.com</CreatedBy>
    <PlateID>sample R57</PlateID>
    <MethodID>64f987a8d19b3d8dcc9e82c3</MethodID>
    <MethodName>TEMPLATE_Standard_AI_Reflected</MethodName>
    <MethodUpdatedUTC>2023-09-07T06:26:08.991Z</MethodUpdatedUTC>
    <Class>Class 1</Class>
    <Count>36</Count>
    <CFU/mL>360.064062549276</CFU/mL>
    <CountedVolume>0.999822080135346</CountedVolume>
    <MarkColor>Red</MarkColor>
    <Comments />
    <InoculationMode>Spread or Poured</InoculationMode>
    <InoculatedVolume>1</InoculatedVolume>
    <DilutionFactor>10</DilutionFactor>
    <PlateDiameter>90</PlateDiameter>
    <ExcludedFraction>0.01779199</ExcludedFraction>
    <MinSize>0.1</MinSize>
    <MaxSize>15</MaxSize>
    <Score>0.75</Score>
    <SerialNumber>10007000/999</SerialNumber>
  </ClassResult>
</Result>
```

3.10. User Settings

When clicking on the 'User Settings' in the main menu, the 'Change Password' dialog will appear, allowing the user to update their application password:

A screenshot of a 'Change Password' dialog box. The title bar is green and contains the text 'Change Password - IFU_operator@iulAI.com' and a close button. The dialog has a light gray background. It contains three input fields: 'Current Password' at the top, and 'Password' and 'Repeat Password' below it. At the bottom, there is a wide, light gray button labeled 'Apply changes'.

The current password must be entered in the 'Current Password' input box.

The new password must then be entered in both the 'Password' and 'Repeat Password' input boxes.

The password is only updated after clicking the 'Apply Changes' button. Once the password has been successfully changed, a confirmation email is automatically sent to the user.

When entering a password, the application displays its strength classification. A password is considered valid when it meets minimum security requirements.

Password strength is classified as follow:

- **Weak:** The password contains at least 5 characters and includes uppercase letters, lowercase letters, and numbers.
- **Moderate:** The password contains at least 5 characters and includes letters, numbers, and symbols.
- **Strong:** The password contains at least 7 characters and includes letters and numbers.
- **Very strong:** The password contains at least 7 characters and includes uppercase letters, lowercase letters, and symbols.

3.11. Account Info

When clicking on the 'Account info' in the main menu, the 'Subscription Account Info' dialog appears with details about the current subscription:

The screenshot shows a 'Subscription Account Info' dialog box. It contains the following information:

Active Plan	
Activation date:	2025/12/19
Expiration date:	2026/12/19
Credit Limits	
Tenant:	100
Group:	100
Consumed Credits	
Tenant:	22
Group:	12

At the bottom of the dialog is a button labeled 'REQUEST RESOURCES'.

Active Plan:

Activation date: Date of activation of the current subscription AI plan.

Expiration date: Date of expiration of the current subscription AI plan

Credit Limits

Tenant: Maximum number of images processing that can be done with the current AI plan.

Group: Maximum number of images processing that can be done by the current group.

Consumed Credits:

Tenant: Total number of images processing done within the current AI plan.

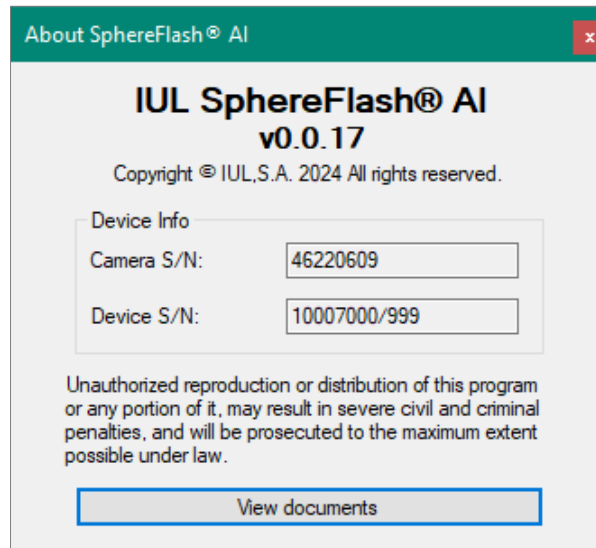
Group: Total number of images processing by the current group, within the current subscription plan.

Request Resources: Request more images to the Tenant-admin. Clicking this button will send an email to the Tenant-admin.

NOTE: If the Active AI Plan has expired or there is an internet connection problem, all the displayed values will be shown as dashes.

3.12. About

When clicking 'About' in the main menu, the 'About SphereFlash® AI' dialog opens.



It includes the current application version, information on the SphereFlash® instrument, and a button to open the folder where some application documents are stored.

View Documents: includes the latest version of the Instructions for Use and the end-user license agreement.

4. TROUBLESHOOTING

4.1. Subscription Portal

Error	Probable cause	Recommended actions
<i>"401 Provided credentials does not belong to web user"</i>	The user has an Administrator or Operator role, so they do not have access to the Subscription Portal.	Administrators and operators can use their credentials to access ONLY the SphereFlash® AI Desktop Application
<i>"409 You are already registered, please use login"</i>	The user has already completed the registration process and clicked the Sign Up button again. An activation email has been sent.	Check the email inbox (and spam folder) for the activation email
		Complete the account activation by following the link provided in the email
		Once the account is activated, access the application using the Login option instead of Sign Up
<i>"409 Company data already registered. Please contact support."</i>	The company information has already been registered in the system by another user from the same organization. NOTE: Only one user per company domain can register.	Verify that the company data entered during registration is correct.
		Check internally whether another user from your organization has already completed the registration using the same company details
		If the registration was performed by another colleague, use different user credentials or request access through them
		If the issue persists, contact the IUL Technical Service team for support.
User did not receive the activation email	Activation email filtered or blocked by the email provider (especially Microsoft 365 / Outlook)	Check the spam/junk folder
		Confirm whether you're using Microsoft 365 (Outlook), as activation emails are often blocked by its filters

Error	Probable cause	Recommended actions
		If the email is still not received, please contact IUL Technical Service for assistance
		If you are creating users as a tenant-admin, you can also try deleting and re-creating the user to trigger a new verification email.
<i>"409 Email already registered"</i>	The email address is already registered in the AI Plan	Check with your tenant-admin, whether the user already appears in user list in the Subscription Portal
		In the Subscription Portal under 'Users', "Is Verified = No", delete the user and create the account again
		If the user does not appear in your list, they may have already attempted to Sign up via the Subscription Portal — in this case, please contact IUL Technical Service
<i>"409 Group credits limits exceed the remaining tenant credits. Please, update other groups credits limits and try again. Alternatively, contact sales for more credits."</i>	The total number of image limits and cloud results limits assigned to groups exceeds the limits included in the AI Plan of the Tenant Admin (company account).	Review the image and cloud results limits assigned to all user groups.
		Reduce the limits of one or more groups so that the total assigned limits do not exceed the limits of the AI Subscription Plan.
		If higher limits are required, once you have used all image limit, renew your AI Plan

4.2. SphereFlash® AI Colony Counting Software Desktop Application

Symptom	Probable cause	Recommended actions
<i>"Unhandled exception has occurred in your application. If you click Continue, the application will ignore this error and attempt to continue. If you click Quit, the application will close immediately."</i> <i>InvalidArgumentValue of '1' is not valid for 'SelectedIndex'. Parameter name: SelectedIndex"</i>	The user account is not assigned to any group in the Subscription Portal.	Tenant-admin must create a group and include the required users in this group in the Subscription Portal.
<i>"Device cannot be found. Make sure the video connection is correctly connected."</i> <i>"ApplicationException in 'None' operation step: Device cannot be found. Make sure the video connection is correctly connected."</i> <i>"No devices are discovered. Check power, network, and USB connections. Some operations with SphereFlash will be disabled."</i>	The SphereFlash® camera is internally disconnected, or the SphereFlash® camera drivers are not installed or not detected (the software was installed without the SphereFlash® connected and powered ON).	Make sure the blue USB cable is connected directly to a USB 3.0 or port on the computer. Note: Do not use any USB HUB or adapter. Connect the SphereFlash® device to the computer and powered ON before the software installation IT member must check if there are other cameras connected to the computer (webcam, external camera), and if so, disable the camera: 1. Go to Device Manager 2. Right-click the mouse on your camera. 3. Disable the camera. If the problem persists, please provide: - Computer brand and model - Operating system and version - Whether it is a laptop or desktop PC - Any other cameras connected to the computer To our IUL Technical Support team

Symptom	Probable cause	Recommended actions
<i>"Connection Failed Please make sure all cables are properly connected."</i>	There's no connectivity with Subscription Portal	IT member must disable the firewall
<i>"IOException in 'None' operation step: timeout elapsed"</i>	Computer and SphereFlash instrument not well connected	Connect the instrument with the computer using the USB 3.0 port and the blue supercable USB 3.0
<i>"HTTP response not OK Service Unavailable"</i>	Network connectivity issue preventing access to the AI Colony Counting cloud services.	IT member must verify connectivity to the following endpoints: https://aicolonycounter.com and https://inference.aicolonycounter.com . Ensure that Port 443 (HTTPS) is open and accessible.
<i>"An unhandled exception has occurred in the application. If you click Continue, the application will ignore this error and attempt to continue. If you click Exit, the application will close immediately. The column named Name could not be found. Parameter name: column"</i>	The desktop application is not updated	Install the new desktop application (v1.2.4)
<i>"Please Enter a New Folder Name It looks like a root folder already exists for this project. Please choose a different name, or specify a different directory. A root folder is being created at this path."</i>	In Application Parameters, the option "Remote output enabled" is activated, but the field "Remote output folder path" has been left empty.	Tenant-admin must disable the option "Remote output enabled", or Enter a valid folder path in the field "Remote output folder path"
<i>"No active plan found for given tenant"</i>	The user does not have an active AI plan assigned	Tenant-admin must include more Image Limit or renew the AI Plan in the Subscription Portal

Symptom	Probable cause	Recommended actions
<i>"Group has reached the maximum credits for inference"</i>	The Image Limit included in the AI Plan or the group has been exhausted	Tenant-admin must renew the AI Plan or upgrade it to include additional images
Clicking RUN opens the file browser instead of capturing an image from SphereFlash	The option "Start WITHOUT SphereFlash® device" was selected at log in dialog	- Log out of the application - At the Log In screen, make sure the "Start WITHOUT SphereFlash® device" checkbox is deselected - Ensure the SphereFlash® instrument is properly connected to the PC - Log in again — the system will then allow image capture directly from the instrument instead of only uploading an image
"Verification failed. Verification is out of limits."	The centering device and/or the verification disk are not correctly positioned on the platform. The verification disk is placed with the wrong side facing up.	- Ensure the centering device (~87–91 mm Ø, Cat. 900013473) is properly placed on the platform, fully enclosing the reference area. - Ensure the correct side of the plate is facing up: • Black colonies on a white background • White colonies on a black background
<i>"Calibration too old."</i>	Calibration date of the instrument has expired	Perform a new calibration of the instrument following the calibration procedure.

Symptom	Probable cause	Recommended actions
<i>"Calibration failed: Please verify that the calibration disk is in optimal condition and correctly positioned. If issues persist, kindly contact your technical support for assistance.</i> <i>Device camera not found. Make sure the video connection is correctly connected."</i>	The SphereFlash® camera drivers are not installed (the software was installed without the SphereFlash® connected and powered ON). As a result, the camera cannot be recognized and calibration cannot be completed.	Connect the SphereFlash® device to the computer using the USB 3.0 cable. Make sure the instrument is switched ON. Reinstall the SphereFlash® software with the device connected, running the installer as Administrator. After installation, repeat the calibration procedure, ensuring the calibration disk is correctly positioned and in good condition.

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