

# MORPHOLOGI SOFTWARE: v11.02 (PSS0065-12)

## Software Update Notification

### Introduction

This document details the release of Morphologi 4 software v11.02 (PSS0065-12) for the Morphologi 4 instrument family. It covers software issues that have been fixed and introduces new features.

The information within this document is required to perform a risk analysis to determine if the software should be installed. In this risk analysis the benefits of the new features provided and resolved software issues must be weighed against the risk of new issues that may be introduced to vital areas of the software or possible changes to the results of future analysis. Installation instructions are provided.

**Note:**  
Please check for any updates to this Software Update Notification at [www.malvernpanalytical.com/en/support/product-support/morphologi-range/morphologi-4](http://www.malvernpanalytical.com/en/support/product-support/morphologi-range/morphologi-4)

If upgrading from a software version other than v11.00, please also refer to the Software Update Notification (SUN) for each version released since the version currently installed.

### Installation

It is assumed that you have authority to install or update software within your facility. It is also assumed that you have Administrator rights for the system upon which the software is installed, as this is a requirement of the installation process. If you do not have this authority, please consult with your I.T. support department before proceeding.

### Recommended System Requirements

The minimum requirements for running this software are highlighted in Table 1 below. The software has been tested under Windows 11 Pro (64-bit) version 23H2.

Table 1: Recommended system requirements for the Morphologi software

| Feature               | Specification                          | Feature                         | Specification                                                           |
|-----------------------|----------------------------------------|---------------------------------|-------------------------------------------------------------------------|
| <b>Processor Type</b> | Intel Core i7-8700 (minimum) Processor | <b>Display</b>                  | 2 x 23" Widescreen Flat Panel Monitors for software and live video feed |
| <b>Memory</b>         | 16GB (2x8GB)                           | <b>Additional Storage Media</b> | DVD +/-R/RW drive                                                       |

|                            |         |                         |                                                                                                                                       |
|----------------------------|---------|-------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| <b>Solid State Storage</b> | 512 GB  | <b>Connectivity</b>     | USB3                                                                                                                                  |
| <b>Hard Disk Storage</b>   | 2Tb HDD | <b>Operating System</b> | Windows 10 Pro (64 bit)<br>– Version 22H2, 19045, or higher using Windows defender security<br>Windows 11 Pro (64 bit) – version 23H2 |

**Note:**

Power saving, turn off hard disk and USB selective suspend should be disabled, to ensure that the software can operate correctly during long measurement, see Appendix A.

**Note:**

Some 3rd party software or operating system patches may prevent the Morphologi software from running correctly. It is not possible to test for compatibility with all windows programs.

## Supported Languages

The Morphologi software suite is only available as an English language application.

## Installation Instructions

Disconnect the Instrument from the computer. This prevents Windows from loading its default driver for the camera which causes the software to crash if run straight from installation. If the instrument was connected during installation, disconnect and re-connect to force Windows to reload the correct driver.

To install the software from a web download, simply double-click the **Malvern Morphologi v11.02 PSS0065-12 EN.exe** to start the installation – Administrator rights are required.

During the installation of the Morphologi application software, Windows User Account Control (UAC) will request permission to install the hardware drivers that are required to support the Morphologi product. When prompted, you **must** allow the installation of these drivers.

## Uninstall Procedure

The software can be uninstalled using the standard Add/Remove feature in the Windows 'Control panel'.

## Backward Compatibility

This is the eighth release of the software which supports the Morphologi 4 and 4-ID. This software is only compatible with the Morphologi 4 platform and cannot be used with Morphologi G3 systems. However, it is possible to review Morphologi G3 results within the Morphologi 4 software.

## New Features

| Reference | Issue                                                 |
|-----------|-------------------------------------------------------|
|           | No new features incorporated in this software release |

## Fixed issues

The main issues fixed in this release of the software are listed in Table 2.

Table 2: Fixes implemented in Morphologi 4 software version 11.01 and 11.02

| Reference     | Issue                                                                                                                                                                                                                                                                                                                                            |
|---------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>355094</b> | Version 11.01 Fixed an issue reported in 11.0 where the aperture could occasionally remain open                                                                                                                                                                                                                                                  |
| <b>355936</b> | Version 11.02 Fixed an issue reported in 11.01 where there were delays of up to 30s during opening of the manual microscope window and the manual focus at the start of an SOP. During initialization of the instrument the top light aperture will open by default. During operation, the aperture, if required, should be manually controlled. |

## Known Issues

Software bugs that have been discovered within the software and will be investigated as part of a future release are listed in Table 3. Please follow the suggested work-around where one is available.

Table 3: Known issues in Morphologi 4 software version 11.02

| Reference     | Issue                                                                                                                                                                                         | Workaround                                                                                                                                                                                                   |
|---------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>81892</b>  | Feature Key enabling program doesn't tell user when it fails                                                                                                                                  | None                                                                                                                                                                                                         |
| <b>207236</b> | When starting instrument for the first time, when Manual Microscope and SOP asks to choose 5X objective and user clicks on 5X objective it can cause software to crash                        | Restart software                                                                                                                                                                                             |
| <b>342405</b> | Running SOPs on the 2.5x objective only, when 'light calibration over sample' is selected a dark line appears down right side of image                                                        | None                                                                                                                                                                                                         |
| <b>90212</b>  | Using Manual microscope on the spectrum page: Double clicked particle doesn't move to laser target when zoomed in                                                                             | Position the particle while zoomed out and then zoom in                                                                                                                                                      |
| <b>146551</b> | Characterization: Username shown in audit trail instead of user ID                                                                                                                            | None                                                                                                                                                                                                         |
| <b>201893</b> | Software crashes when maximizing the live image on the SOP window by pressing 'Full Screen' button                                                                                            | None                                                                                                                                                                                                         |
| <b>205779</b> | System check reports only work on same computer as particle data                                                                                                                              | Move particle data to different computer                                                                                                                                                                     |
| <b>215974</b> | Systems connected to the network can be affected by IT updates, causing the software to crash.                                                                                                | Contact your IT department for assistance                                                                                                                                                                    |
| <b>294734</b> | With multi optics defined in SOP, UI not showing second and subsequent manual focus position correctly.                                                                                       | None                                                                                                                                                                                                         |
| <b>353881</b> | Occasionally audit trail data is not logged in the audit trail due to internal file tracking error.                                                                                           | Allow sufficient time for the software to close and restart before taking measurements.<br>Implement a regular check to ensure the audit trail is logged correctly.                                          |
| <b>364040</b> | During one-click MDRS measurements, spectra fail to save when <i>Simple Background Subtraction</i> is selected in the SOP. This issue does not occur when <i>No Background Subtraction</i> or | It is recommended to run the SOP with <i>No Background Subtraction</i> selected and then apply the <i>chosen background subtraction</i> by reanalyzing the record, allowing access to both raw and processed |

|     |                                                                                                                                                              |                                                                                                                                                                                                                                                   |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|     | <i>Substrate Background Subtraction</i> is selected, where spectra save correctly.                                                                           | data. Alternatively, <i>Substrate Background Subtraction</i> can be selected in the SOP.                                                                                                                                                          |
| N/A | Morphologi G3-ID reference spectra can be used in chemical libraries for Morphologi 4-ID but will not match the full wavenumber range of the new instrument. | Where possible acquire new reference spectra with the Morphologi 4-ID.                                                                                                                                                                            |
| N/A | Measurement aborts at start of scan if memory allocation fails. An error will be reported, and the user will be instructed to restart the software.          | Restart software if this issue occurs.                                                                                                                                                                                                            |
| N/A | During initialization of the instrument the top light aperture will open by default. During operation the aperture will not be automatically controlled.     | If the user closes the top light aperture manually, the user will now need to re-open the aperture if required. Which is a change of behavior made in version 11.02. Power cycling of the instrument will open the top light aperture by default. |

## Windows Security Settings

With a 21 CFR Part 11 compliant computer system, one of first concerns to address is the potential for the loss of data: either accidentally, or by intention. Utilizing the built-in security tools of Microsoft Windows®, an I.T. professional can change user access to specific files and/or folders by simply removing certain file/folder permissions.

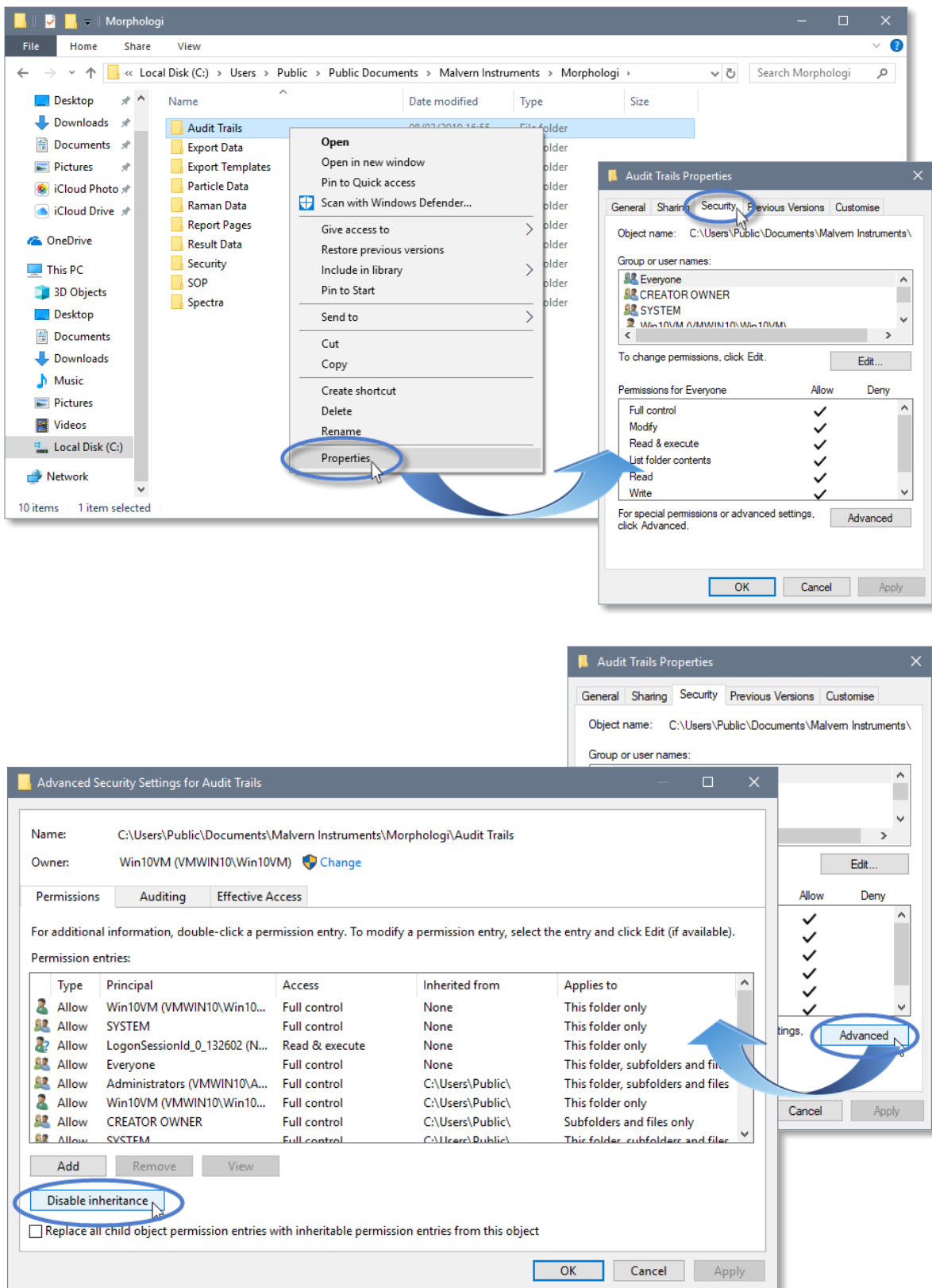
For the next part of this document, it is assumed that you have the required administrator rights for the system upon which the Malvern Panalytical software is being installed; allowing you to install, or update software and configure windows security permissions.

### Note:

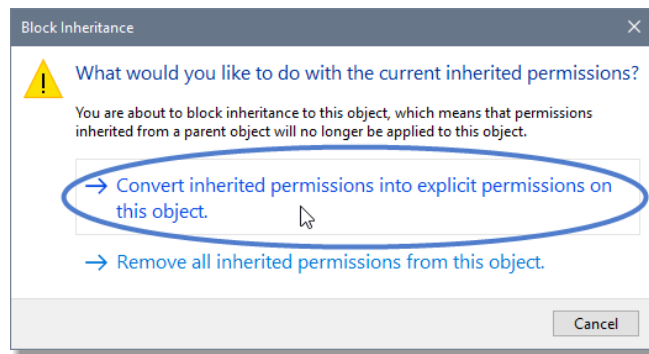
For the following demonstration we have previously created a user group, through the Computer Management console, called 'Morphologi Users'. This user group will later be added into the folder permissions of the Audit Trails folder to prevent users from deleting records. This process can be applied to any other output folder requiring limited user access. In the following illustrations, we have not removed default groups such as 'Everyone' or 'Users' - these can be deleted or used as an alternative to dedicated user group/s. However, when using these groups, we strongly advise that explicit 'Denies' are not used, unless you fully understand the Microsoft® file/folder security permissions.

## Changing the folder security permissions in Windows 10

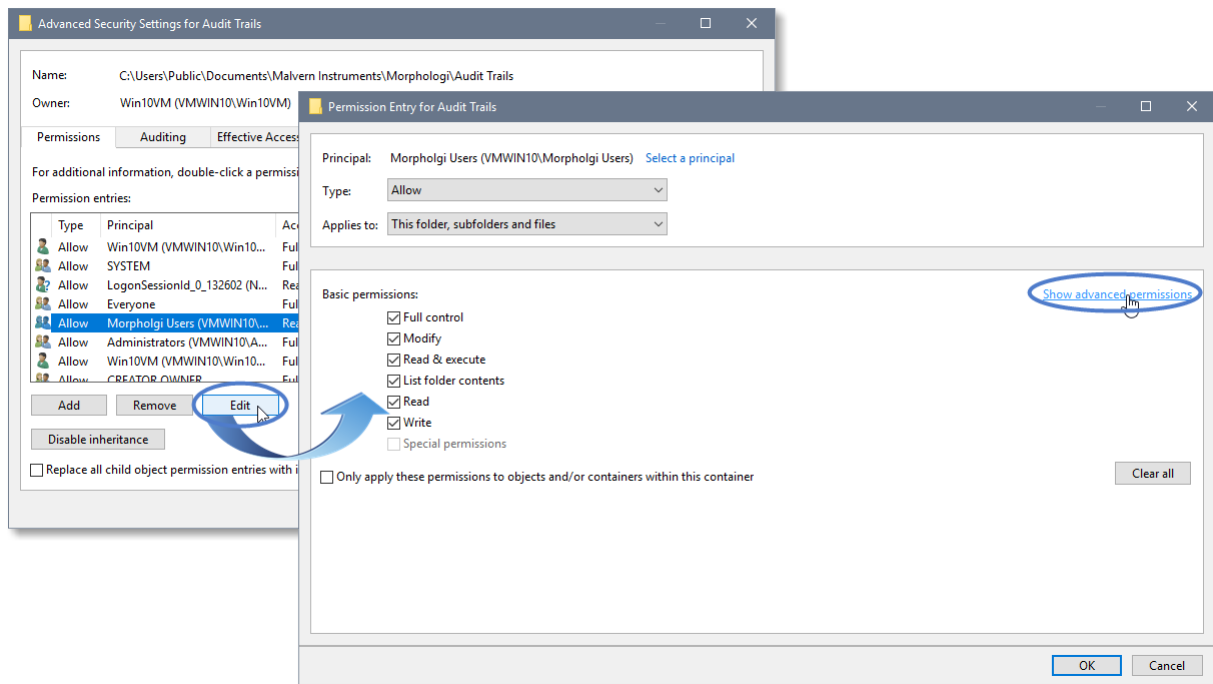
1. Navigate to one of the folders that needs to be secured - in this case we have selected the folder where the Morphologi audit trail files are stored. Right-click on the folder and through the context menu open the folder **Properties**.
2. Within **Audit Trails Properties**, left-click on the **Security** tab and left-click the **Advanced** button to open the **Advanced Security Settings**.



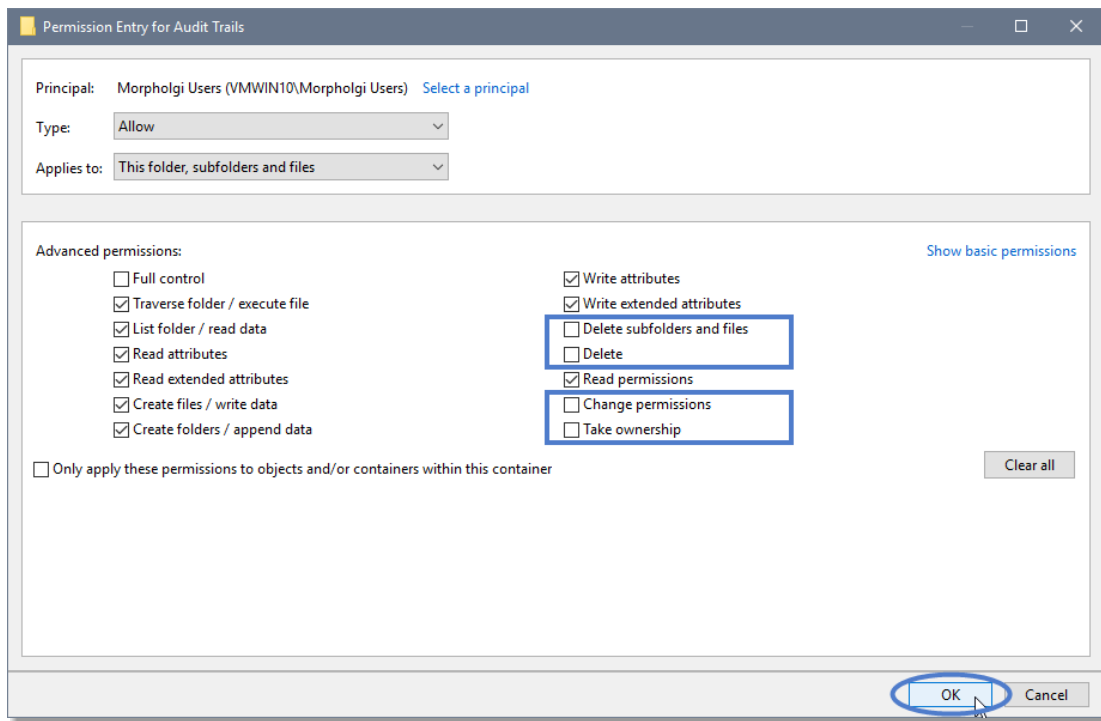
3. Within the **Advanced Security Settings** left-click the **Disable inheritance** button.
4. Within **Block Inheritance**, left-click on **Convert inherited permissions into explicit permissions on this object** – this removes the permission inheritance from the parent folder, whilst keeping the current users and groups settings.



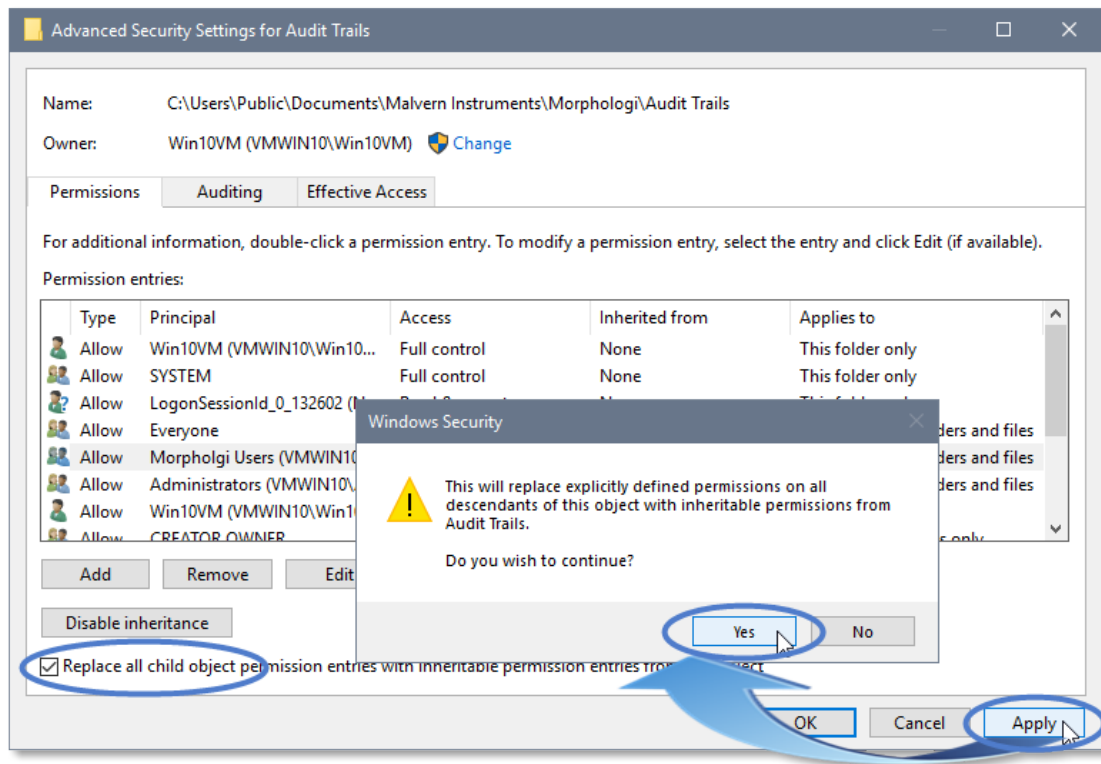
5. After returning to the **Advanced Security Settings** window, left-click to select the **Morphologi Users** group and then left-click the **Edit** button.
6. In the **Permissions Entry** window, left-click the **Show advanced permissions** to reveal the full permissions list.



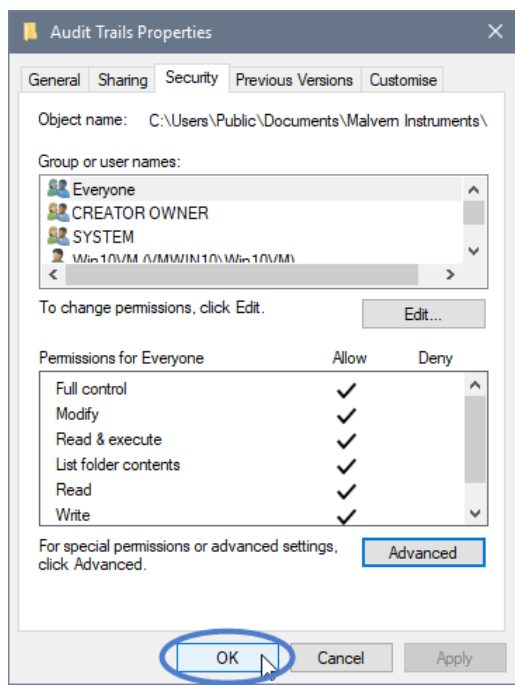
7. Left-click to de-select the check-boxes of **Delete subfolder and files**, **Delete**, **Change permissions**, **Take ownership** and finish by left-clicking the **OK** button to return you to the previous window.



8. Left-click **Replace all child permission entries with inheritable permission entries from the object** and left-click the **Apply** button.
9. Left-click the **Yes** button when prompted to replace the permissions and the **OK** button when you return to the previous window.



10. Left-click the **OK** button when you return to original folder properties window.



## Error Reporting

Should persistent problems occur please contact your local Malvern Panalytical Helpdesk. To speed up response time include all the following:

- A **full-screen** screen shot of any error message and everything behind it.
- Full description of what was happening at time of issue and ideally leading up to it.
- Instrument serial number (e.g. MAL1060289)
- Software version — go to **Help — About Morphologi** (e.g. 10.31; all digits are important)
- System information — double click on the Morphologi 4 or 4-ID logo at bottom right corner of the Software. Take a screen shot of system information and include on error report.
- Additional system setting export — go to **tools — maintenance**. Enter the password (maintenanceon). Select **Export Site File** and save the text file to include on error report.

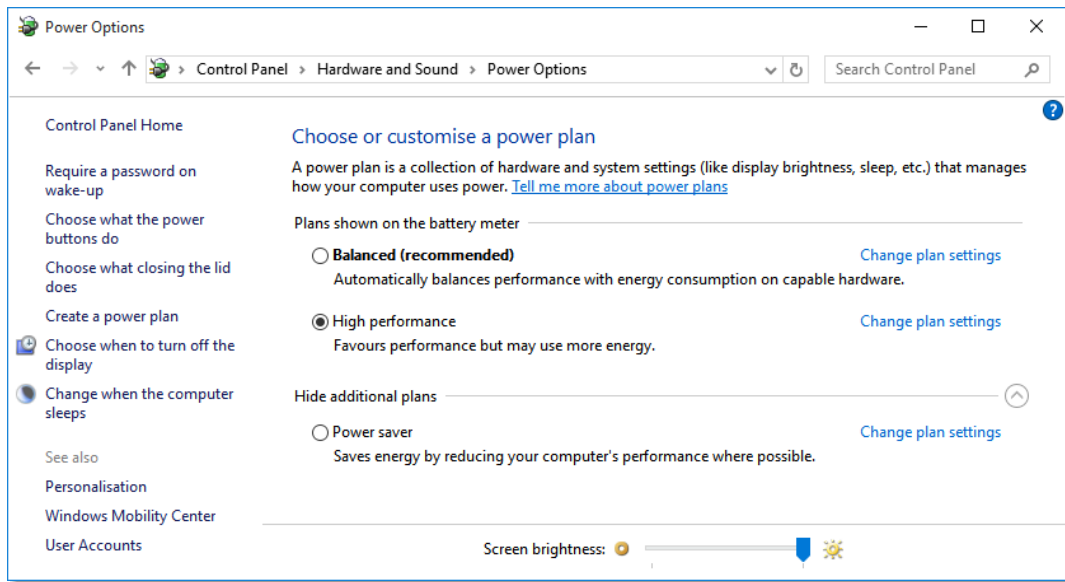


## Appendix A:

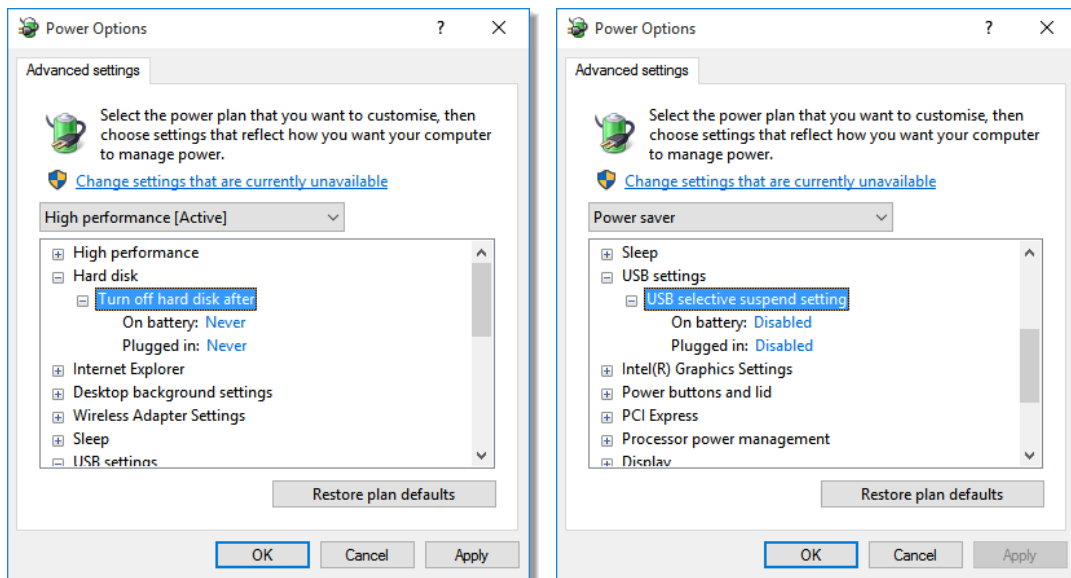
### Disabling power saving, hard disk sleep and USB selective suspend

To disable the power saving options of the computer, use the **Power Options** available in **Control Panel**.

1. Select the **High performance** power plan as shown.



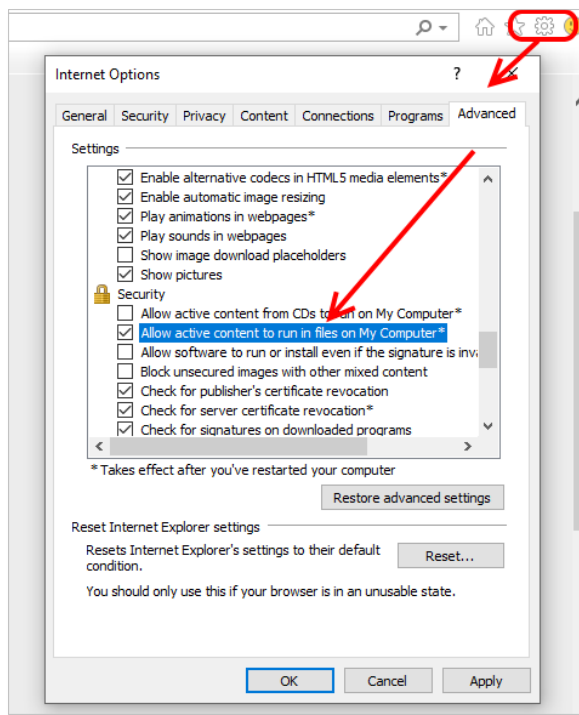
2. Change plan settings for **Turn off hard disk** to **Never**, and **USB selective** to **Disabled**.



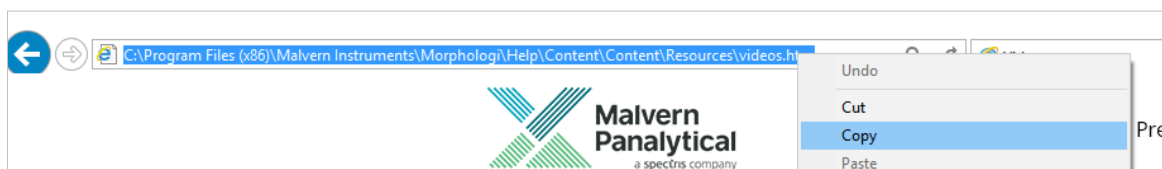
## Appendix B: Enabling video content for Morphologi Help.

To view the video tutorials in the Morphologi Help either enable active content in Internet Explorer or open the Help in another browser that supports active content by default.

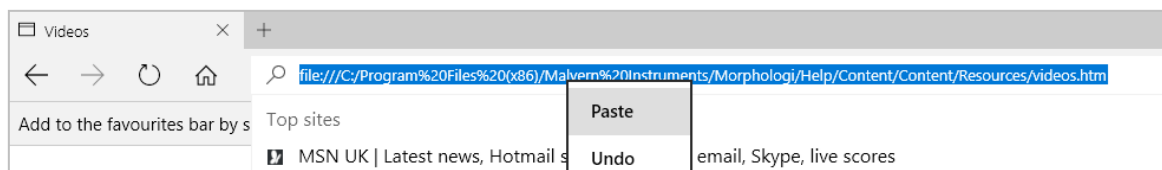
1. To enable active content in Internet Explorer, open the **Internet Options** and go to the Advanced options then go to the Advanced tab.



2. To open the Help in another browser that supports active content by default, copy the help link from Internet Explorer to another browser such as Microsoft Edge or Google Chrome and verify that these browsers have the rights to run local video content.



3. Copy browser link from Internet Explorer



4. Paste browser link into Edge then press <enter> to load page.

## Appendix C:

### Upgrade behavior Morphologi 10.30 to 10.31, 10.32 or 10.33

When version 10.31 or later of the software is installed and the instrument is not connected to the computer, the camera drivers are installed straight away and will connect when the instrument is plugged in again, as per the Installation section above.

If the instrument is connected to the computer while version 10.31 or later software is installed the existing drivers are disabled and the new drivers are queued to be installed when the computer is restarted. Trying to use the camera in this state will cause the software to crash. The computer must be restarted before the instrument can be used properly.

To determine the camera driver state, double click the Morphologi 4 instrument icon  at the bottom right of the software to see the camera driver state. The camera driver version should be 4.93 or 4.96 (*Figure 3 and Figure 4*).

If the driver is not loaded (*Figure 2*) restart the computer and check again.

If the connection window consistently shows the wrong camera firmware version re-install the software. If that doesn't work, open the **Device manager** and right click on "uEye UI-359x Series" and install the drivers manually (*Figure 5*). The drivers are located in `C:\Program Files (x86)\Malvern Instruments\Morphologi\Drivers\uEye`

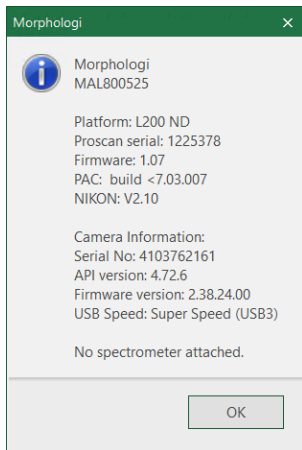


Figure 1. Version 4.72 drivers from v10.30 software

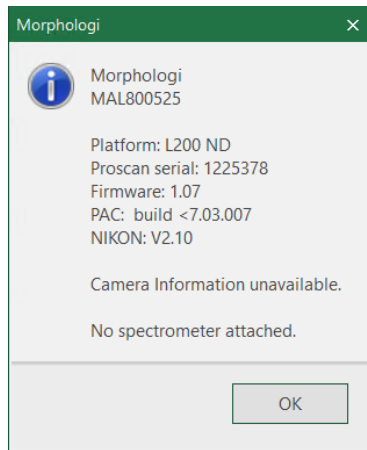


Figure 2. After upgrading to 10.31 or 10.32 with camera attached

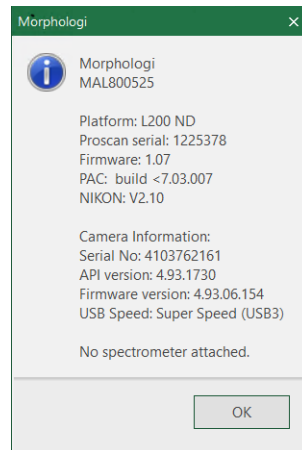


Figure 3. After upgrading to 10.31 or 10.32 and restarting the compute

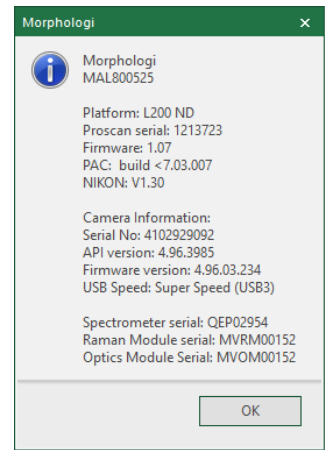


Figure 4. After upgrading to 10.33 and restarting the computer

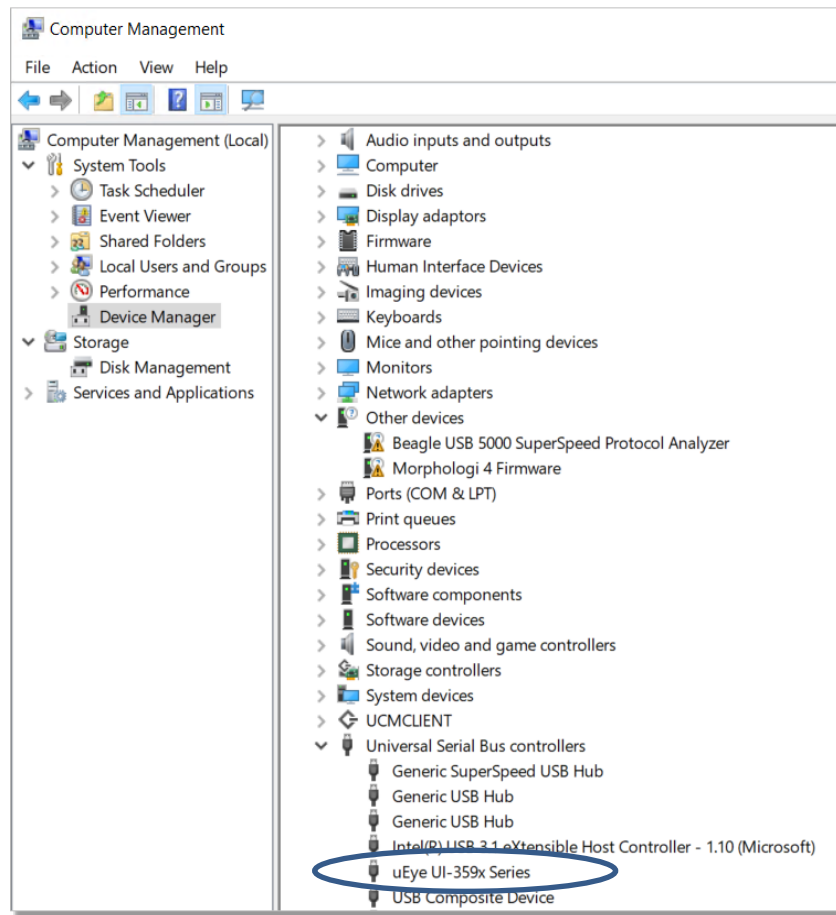


Figure 5: Device manager view of the Morphologi

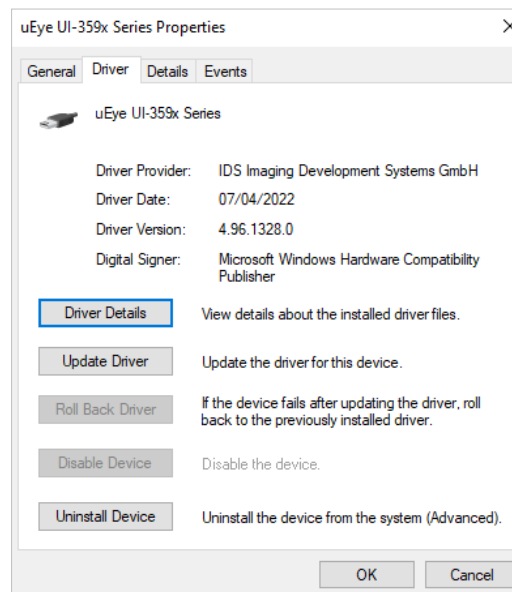


Figure 6: Device manager view of driver properties

## Error code 38 in the device manager

If error code 38 is observed in the device manager, and the driver version in the properties window does not match the screenshot in Figure 6 follow the instructions below:

1. Power down the Morphologi unit
2. Uninstall the Morphologi software from the control panel.
3. Power cycle the computer
4. Install 10.34
5. Turn on the instrument and start the software.





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