MORPHOLOGI G3 SOFTWARE
NEW COMPUTER v8.30 ADDITIONAL UPGRADE INSTRUCTIONS

This document describes additional instructions necessary when installing v8.30 Morphologi G3 software on to a 'new' computer, that has not had Morphologi G3 software previously installed.

The original Morphologi G3 computer will be needed as part of the Windows 10 installation. Some Configuration and Calibration files will need to be transferred from the old computer to the new one. If you do not have access to these files, then an engineer will be required, as there are setup procedures that only an engineer can perform.

Additionally, upgrading a Morphologi G3 instrument from a 32-bit operating system to a 64-bit operating system (Windows 10), may require a firmware upgrade for the instrument camera.

Camera Firmware check

Before beginning the upgrade and installation on the new Windows 10 computer, the firmware inside the Morphologi G3 camera must be checked for compatibility. A camera firmware of v1.9 is required for the camera to work on Windows 64-bit systems.

This operation must be done on the original Morphologi G3 computer before any further installation is begun.

Visual check

1. Pull the Camera cover straight up off the instrument – this will remove it from the fitting.

2. Inspect the back of the Camera.

    - If there is a label that says v1.9, then the camera firmware is correct, and the software installation can continue from the next section – *Installation on a new Windows 10 computer.*

   - If there is no label, do the *Program check* step below.

Program check

If there is no label, the firmware must be checked using the Camera program tool (*SDKViewer51* 🔘 SDKViewer51).

This will be found on the Morphologi G3 v8.23 or earlier Software CDs, under >> ....\Tools\Camera   It is not part of the G3 web software. (If you do not have this CD please contact Malvern Panalytical).

1. Make sure the firewire cable is connected to the firewire card in the original computer.

2. Double click on **SDKviewer51**. This screen should appear.
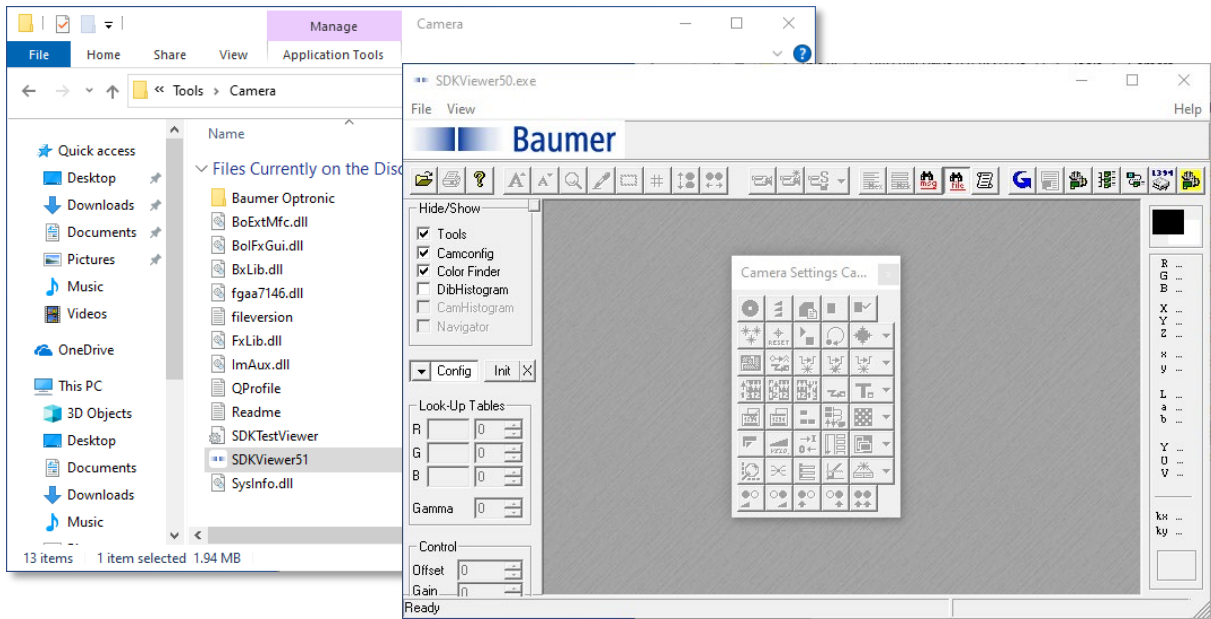
3. Click on **Init**. The view should change from grey to black. This will confirm the camera is working.
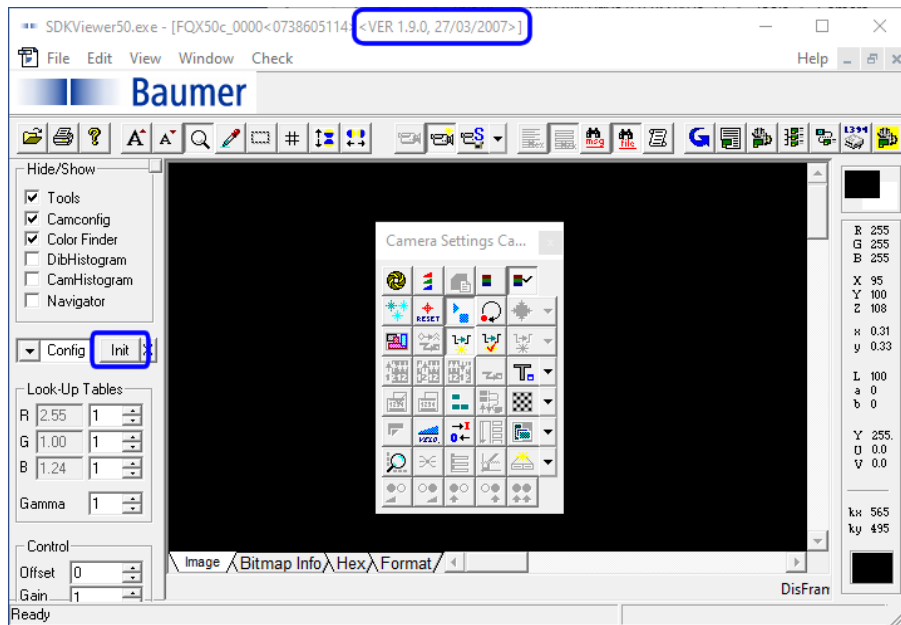
4. The Camera firmware version will be seen in the top line. In this case it is **1.9**.

- If the firmware is v1.9, then the Camera is already compatible to work with Windows 10.

- If the Firmware is v1.7, then it will need updating to V1.9 to work with Windows 10. Please contact Malvern Panalytical.

8. Close **SDKviewer**.

Installation on a new Windows 10 computer

This document provides additional information for installing the software on a <u>new</u> Windows 10 computer.

If a computer is supplied from Malvern Panalytical, it will already be setup. If not, setup the computer as detailed in the section: *Setting up the computer.*

Install the Firewire card

➔ Note:
If the computer was supplied by Malvern; this will already be fitted, if requested.

A Windows 10 compatible firewire card is needed for connection to the Morphologi G3 camera. This must be done <u>before</u> installing the Morphologi G3 software.

1. Turn <u>off</u> the Computer.

2. Install the Firewire card.

3. Turn <u>on</u> the Computer.

Check and install the .NET Framework 3.5 (Morphologi G3-ID)

➔ Note:
If the computer was supplied by Malvern; this will have been installed. This is only needed for Morphologi G3-ID instruments.
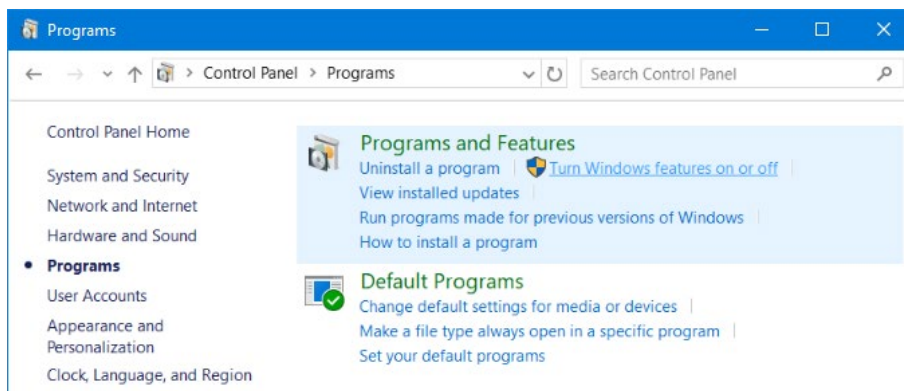
.NET Framework 3.5 is required to enable older programs to work on Windows 10. Without this installed, the Spectrometer for the Morphologi G3-ID will not work.
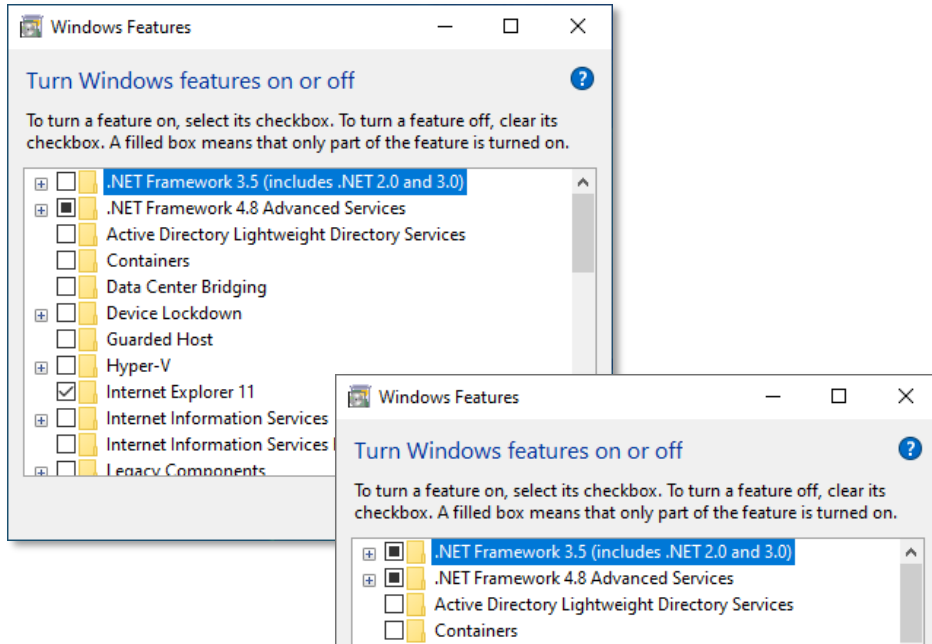
➔ Note:
An Internet connection will be required if .NET Framework 3.5 is not installed.

1. Select **Control Panel – Programs and features – Turn Windows features on or off**.

2. The **Windows Features** window will appear.

- If .NET Framework 3.5 (includes .NET 2.0 and 3.0) is turned on the box will be filled.
- If .NET Framework 3.5 (includes .NET 2.0 and 3.0) is not turned on the box will be blank

3. Select the checkbox and press **ok**.

- If the feature is already installed, then the .NET feature will be turned on, and the box will be filled.
- If the feature is <u>not</u> installed, the computer will prompt for it to be downloaded – an Internet connection will be required to download and install this.

  Follow any instructions displayed to install.

4. With the feature turned on, or after installation has completed, restart the computer and check feature is still on.
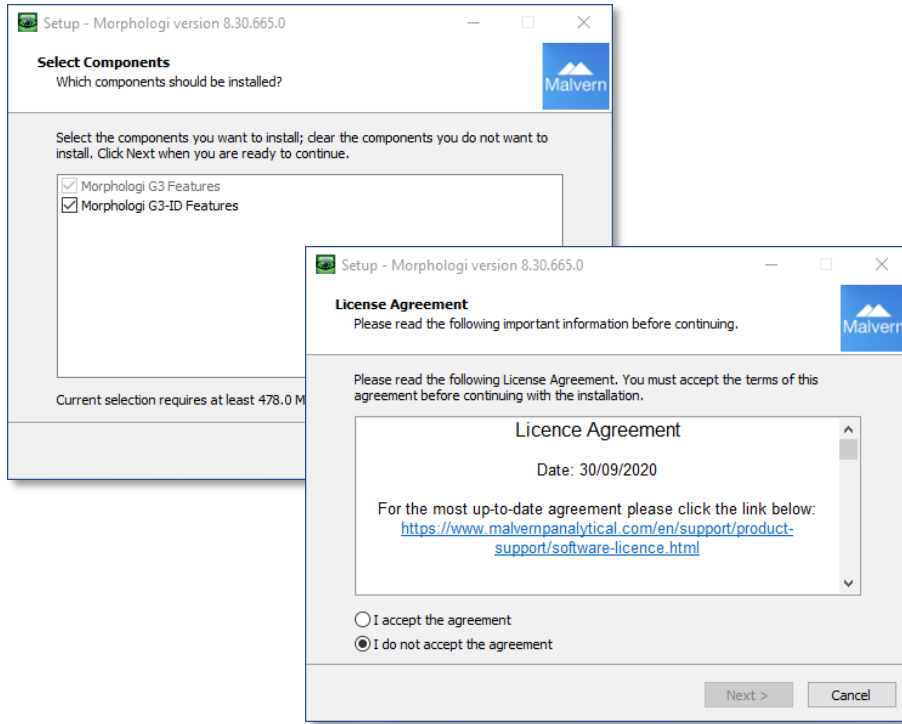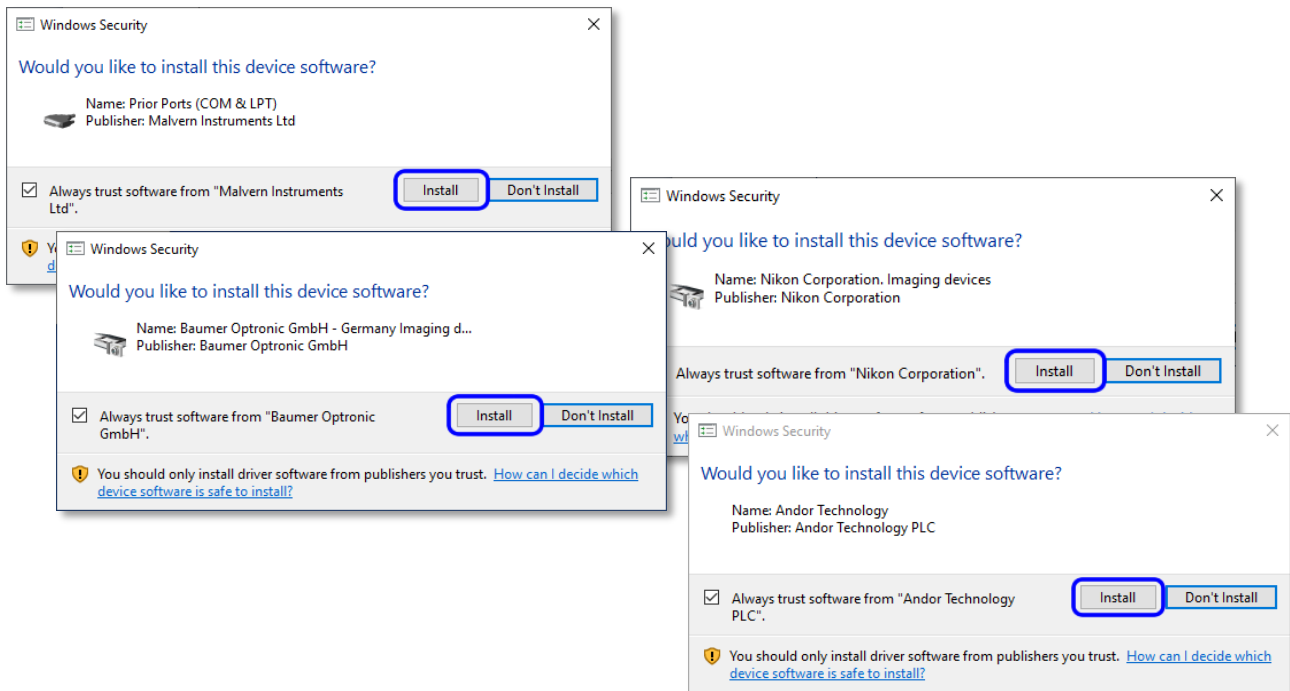
Installing the software

 Note:
If the computer was supplied by Malvern; this will have already been installed.

Install the Malvern Panalytical application software as described in the Software Update Notification (SUN).

1. Disconnect the Instrument from the computer during the install.

2. During the install, follow any instructions that appear; accept the License agreement, and select the Morphologi G3 components required.

3. During the install, Windows may request permission to install the hardware drivers that are required to support the Malvern Panalytical product. When prompted, you <u>must allow</u> the installation of these drivers.

4. The software will install all Microscope, Camera, and Spectrometer (if a Morphologi G3-ID) drivers automatically.

5. After successful installation, restart the computer with the Morphologi G3 still <u>disconnected</u>.

6. Start the Morphologi G3 software and check it opens.
    It should open up with the *Example results.vmes* records shown.

7. Close the Morphologi G3 software again.

There are now a few more steps to do to ensure full functionality.

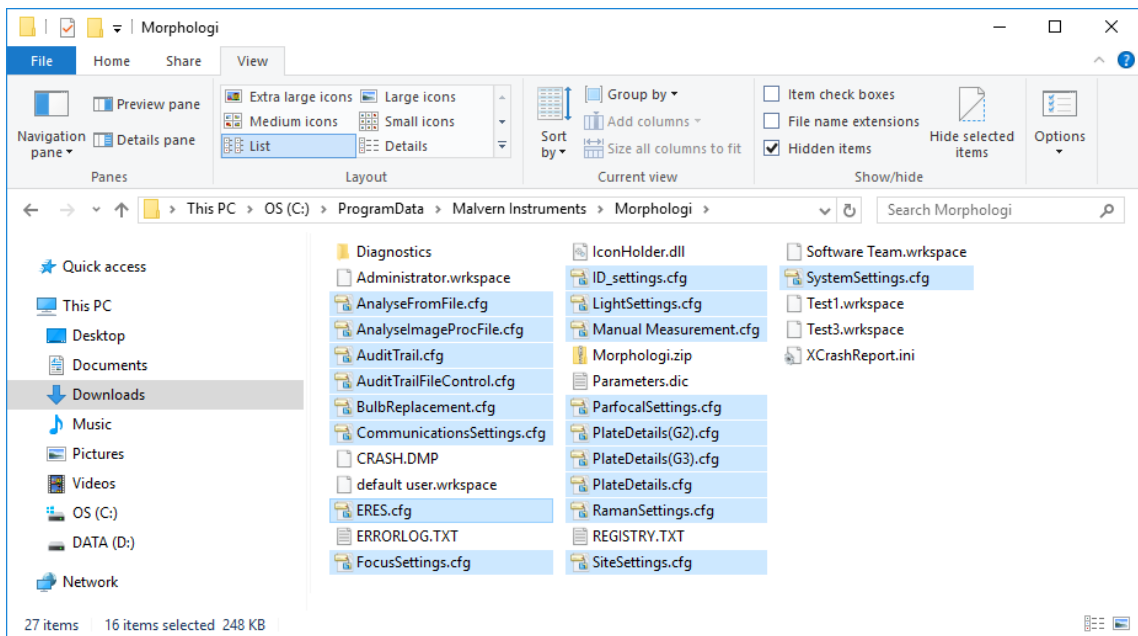## Replacing the Morphologi G3 configuration files (Morphologi G3/G3-ID)

The Morphologi G3 configuration files are stored here in the <u>old</u> computer:
C:\ProgramData\Malvern Instruments\Morphologi

Note the **ProgramData** directory is normally hidden. Ensure ☑ **Hidden items** is ticked in the C:\drive to see all directories.
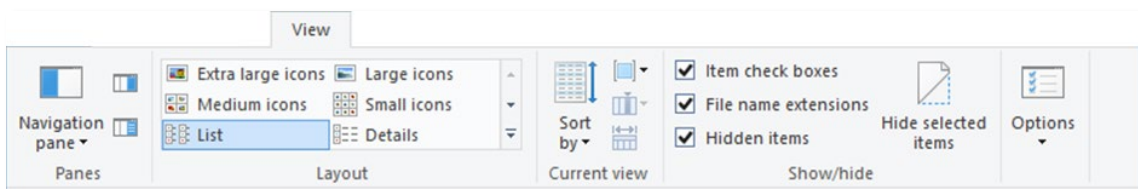
1. Copy <u>all</u> the configuration (.cfg) files from the **Morphologi** directory in the <u>old</u> computer.

2. Paste the copied configuration files into the **Morphologi** directory in the <u>new</u> computer (*C:\ProgramData\Malvern Instruments\Morphologi*).
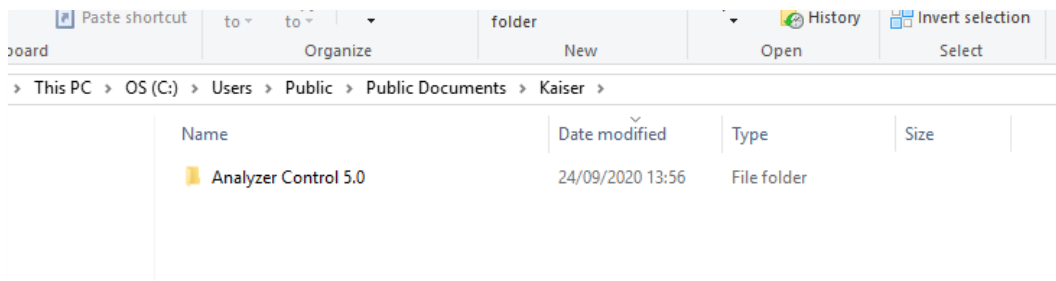
    This will overwrite the files that are already there.

Replacing the Morphologi G3 ID (Spectrometer) Calibration files (Morphologi G3-ID)

The Morphologi G3 ID (Spectrometer) Calibration files are stored here in the <u>old</u> computer:
>   *C:\Users\Public\Documents\Kaiser*

1. Copy the <u>complete</u> Kaiser directory from the old computer.

2. Paste the copied Kaiser directory into the **documents** directory on the <u>new</u> computer:
>   *C:\Users\Public\Documents*

   This will overwrite any files that may already be there.

Serial number check – before initialization

1. After replacing the Configuration and Calibration files, restart the computer with the Morphologi G3 still <u>disconnected</u>.

2. Start the Morphologi G3 software and again check it opens.
   It should open up with the *Example results.vmes* records shown.

3. Go **Tools – Options – System** and check the serial number shown matches that on the Morphologi G3. That can be checked on the serial number label, underneath the lift out panel on the right of the top cover.

4. Close the Morphologi G3 software again.

Connect the Morphologi G3/G3-ID to the computer

If not already connected, connect as follows.

1. Connect the Morphologi G3 cables.

   - Mouse   USB 3
   - Keyboard   USB 3
   - Morphologi G3 communications cable   USB 2 or RS232 (older Morphologi G3 instruments)
   - Morphologi G3 camera firewire cable   Firewire port

2. Connect the Morphologi G3-ID cables (if applicable).

   - Spectrometer communications cable   USB 2
   - Spectrometer (laser)   RS232

3. Connect the power cables.

Start the Morphologi G3 instrument – Morphologi G3/G3-ID

1. (Morphologi G3-ID)
   Switch <u>On</u> the Spectrometer mains.

2. (Morphologi G3-ID)
   Switch <u>On</u> the Spectrometer camera (<u>Camera only</u>, <u>not</u> the laser key).
   The camera driver should be detected automatically for the spectrometer.

3. Switch <u>On</u> the Morphologi G3 mains and rear switch.

4. Restart the Morphologi G3 software.

5. The Morphologi G3 should now start to initialize.

6. Depending on the Morphologi G3, once initialization is complete – **Morphologi G3 or G3-ID** icon should be seen.

7. Once initialized, move the joystick just to confirm the XY stage moves.

If no initialization

If no initialization, the Instrument communications port may be wrong in the Morphologi G3 software.

1. Go **Tools – Options – Computer** and select an instrument port and press **Apply**. After each selection wait 10 seconds for the instrument to make a connection.

2. If it makes connection, components on the Morphologi G3 will start to move.
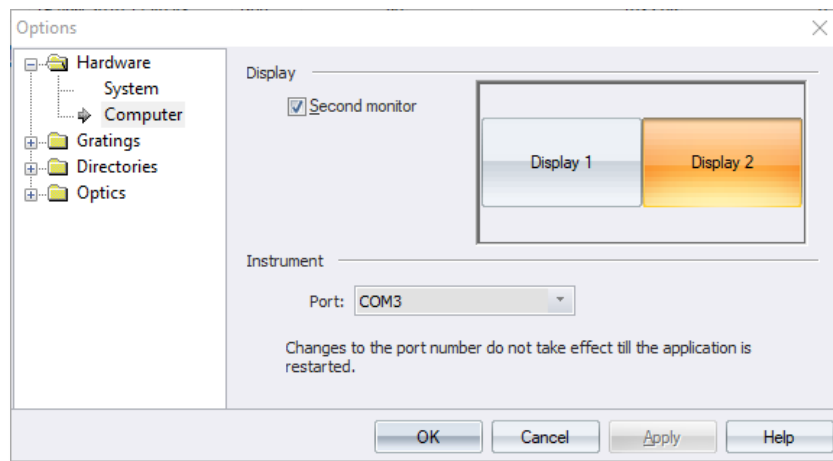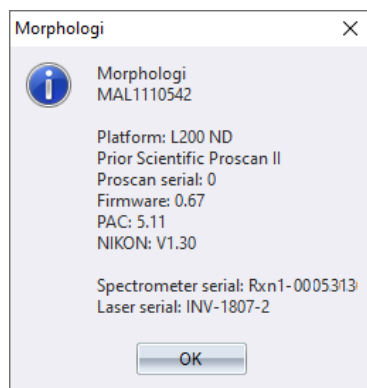

In this example the correct port is Com 3 – this is the normal port

3. If it does not choose another Port.

4. Press OK once communication is made, and initialization has begun.

Serial number check – after initialization

1. Double-click on the Morphologi G3/G3-ID icon to show the Morphologi G3, or the G3-ID & Spectrometer Serial numbers.

- For a Morphologi G3 – "No spectrometer attached" should be shown.
- For a Morphologi G3-ID – The spectrometer and laser serial numbers should be shown. If not check the Spectrometer Communication port.

Check the Spectrometer Communication port (Morphologi G3-ID

1. In the Morphologi G3 software, select **Tools – Maintenance**.
2. Enter the password **maintenanceon**.
3. In the Morphologi G3 software, select **Tools – Maintenance – Spectrometer Options**.
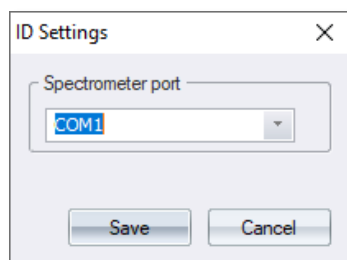
4. Check the Spectrometer COM port from the drop-down list. This will be the hardware port the Spectrometer is connected to.

Close the Morphologi G3 instrument

Check that the Morphologi G3 instrument closes correctly. In order…

1. Close the Morphologi G3 software.
   - The XY stage on the Morphologi G3 will be parked.
   - The software will close.
2. Turn off the Morphologi G3.
3. Turn off the Computer.

Final Instrument checks

The Morphologi G3 should now be setup.

1. Start the Morphologi G3 instrument; in order…

    a) Computer   b) Spectrometer and Morphologi G3 instrument   c) Morphologi G3 software

2. Wait for initialization to complete.

3. Conduct some quick checks and characterisation to ensure Morphologi G3 is working correctly.

   - Manual microscope
   - Characterization
   - Verification check
   - 21 CFR Part 11 functionality

Manual microscope

Open **Manual microscope** and check functions.

   - Check an image can be viewed
   - Select each objective
   - Move the stage
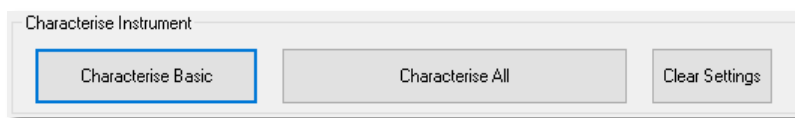   - Check target moves in and out
   - Swap between light sources

Characterization

Characterize the Instrument.

Select **Tools - maintenance - Characterise instrument**
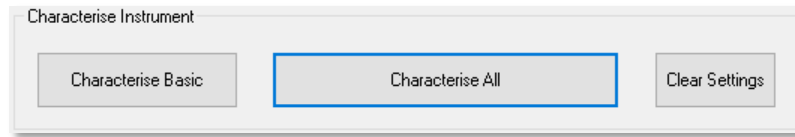(maintenance mode will need to be enabled).

Morphologi G3 instruments

1. Press **Characterise Basic** – and wait for tests 1 to 5 to complete.

2. Press **Ok** when all tests are complete.

Morphologi G3-ID Instruments

1. Place a PVS5114 slide in position 1 of the 4-slide holder.

2. Press **Clear settings**.

3. Press **Characterize All** – and wait for tests 1 to 8 to complete.

4. Press **Ok** when all tests are complete.

Verification check

Run a **PVS5113** measurement – if you have a PVS5113 slide.

1. Place a PVS5113 slide in the position 1 of the sample holder.

2. Select **Run SOP** and select **PVS5113_G3_5M_OQ_V1.2.vsop**
   This is found in   *C:\Users\Public\Documents\Malvern Instruments\Morphologi\SOP*

3. When complete, check the **Morphologi Performance Check report v1.0** report to see if the measurement has passed. You may have to select this via the **workspaces** to display.

21 CFR Part 11 functionality

A <u>new</u> 21 CFR Part 11 license key is required after upgrading to v8.30. Previous license keys will not work.

The part number for the new license key is CPS0136 please contact your Malvern Panalytical representative to order the activation key.

Finally…

This will have configured the new Windows 10 computer to work correctly with the Morphologi G3/G3-ID.

It is best though to have an engineer to perform a Performance Verification (PV) or Operational Qualification (OQ) just to confirm this.

If you do <u>not</u> have the configuration and calibration files from the old computer, then an engineer will be required, as there are some setup procedures that only an engineer can perform with the correct tools.

Setting up the computer

If a computer is supplied from Malvern Panalytical, it will already have been setup. If not, setup the computer as follows.

This procedure follows the setup performed when a computer is setup at Malvern Panalytical <u>before</u> being shipped. It does <u>not</u> take into account 21 CFR setup, or any other security and network settings that may need to be installed.

> **Note:**
> Do **not** connect any network/internet cable during the initial setup. The setup is done with **no** connection to the internet.

Initial computer setup – activating Microsoft™ Windows®

The computer and two monitors must be configured for the customer.

Make sure that the Morphologi G3 or Spectrometer are <u>not</u> connected to the computer.

This is important as Windows will automatically recognize components and install the wrong drivers. The Morphologi G3 must <u>not</u> be connected until the software has been installed.

1. Connect the video cables from the two monitors to the computer.

2. Connect the keyboard and mouse, preferably at the back of the computer (USB 3).

3. Connect the two monitors and the computer base unit to three mains AC outlets.

4. Turn on the monitors.

5. Turn on the computer.

6. Windows® will now request you to follow a series of instructions to set-up.

> **Note:**
> The order, features and title of the instructions can vary depending on the Windows build version installed on the computer.

Instruction	Setting/Type	Select
Select Region	USA	YES
Select Language	United Kingdom	YES
Select Keyboard Language	United Kingdom (or required local language)	YES
Add another Keyboard Language		Skip (This can be set later by the user)
Connect Internet		Skip / I don't have Internet
Connect now to save time later		NO / Continue with limited setup
Connect Ethernet		Skip
Connect now to save time later		NO
License Agreement		Accept
Name	G3	Next
Password	Leave Blank (no password)	Next (This is the default Malvern Panalytical setting – and can be changed later – but the customer may wish to input their own password at this point)
Cortana		NO/Decline, then click Accept
Do More with Voice		NO, then click Accept
Location		NO, then click Accept
Find My Device		NO, then click Accept
Send Diagnostic Data		Basic, then click Accept
Improve Inking & Typing Recognition		NO, then click Accept

Instruction	Setting/Type		Select
Tailored Experience & Diagnostic			NO, then click Accept
Apps Advertising			NO, then click Accept
Product and services 1 Do move across devices with auditing history			NO
Product and services 2 Let cortana help you get things done			Not Now
Support & Protection 1	Leave Blank		Next
Support & Protection 2	Leave Blank		Next
Complete			This step will take some time

After the last instruction the computer setup will now progress automatically until the setup is Complete

Computer and monitor setup – after Windows® setup is complete and activated

Close any programs that may have started automatically.

Display setup

1. Select **Settings** ⚙, then **System**, then **Display**.

2. Move the Displays as required. Left click on the left-hand display (1).

⚙ Display

Select and rearrange displays

Select a display below to change its settings. Some settings are applied to all displays.

⚙ Display

Resolution

1920 × 1080 (Recommended)

Orientation

Landscape

Multiple displays

Multiple displays

Extend these displays

☑ Make this my main display

Display adapter properties
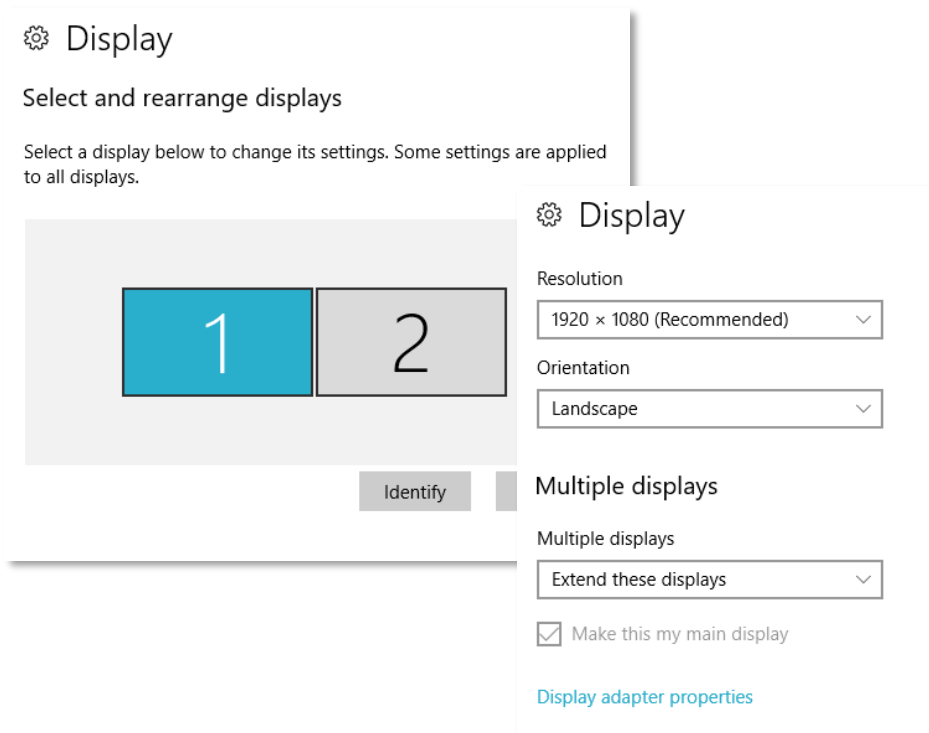
- Set **Resolution** to: Recommended
- Set **Orientation** to: Landscape
- Set **Multiple displays** to: **Extend these displays** from the drop-down
- Select the **Make this my main display** check-box

3. Close **Settings – Display** window

Processor Multi-core check

1. Type **Task manager** into the search 🔍 box and select the **Task manager** program when it appears.

2. Select the **Performance** tab, then **CPU**
   if only one graph is shown, right-click in the graph area and select **Change graph to**…>   **Logical processors**

3. This will show the that the Operating system is running in multi core mode.

4. Close **Task manager**
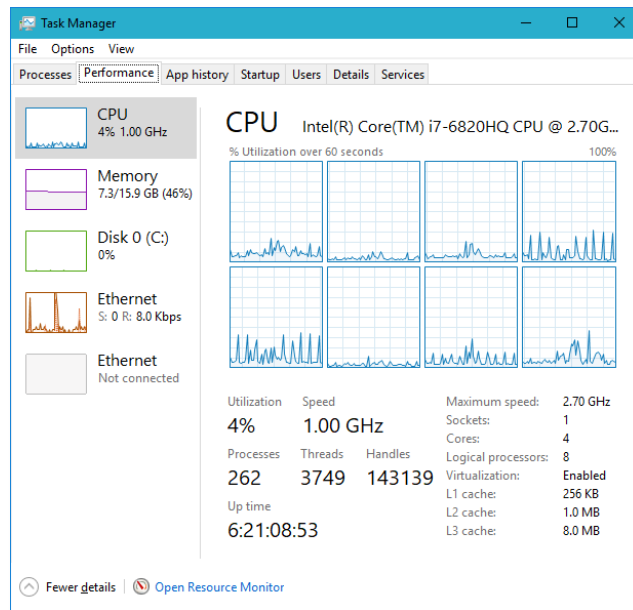
## Configure the Power options

1. Type **Control panel** into the search 🔍 box and select the **Control panel** program when it appears.

2. Select Power options

   Power Options

   (This may be under **System and Security** depending on the view settings)

3. Select **High performance** power scheme and **Change plan settings**; then **Change advanced power settings**
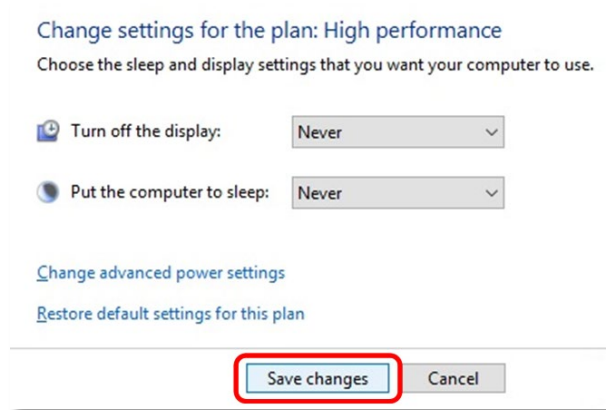   (This may be under **Additional plans**)
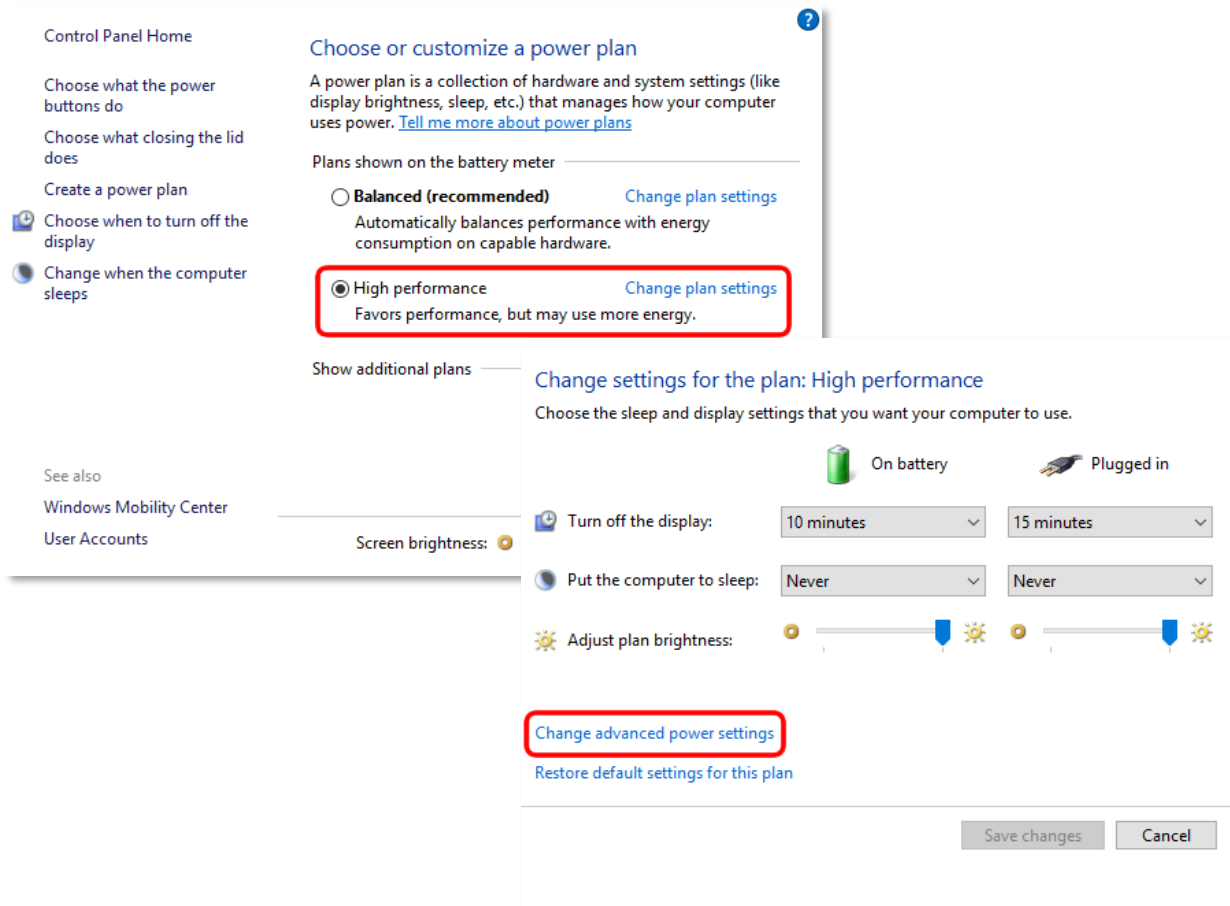
4. Under **Advanced settings**, change the power settings as described in the table.
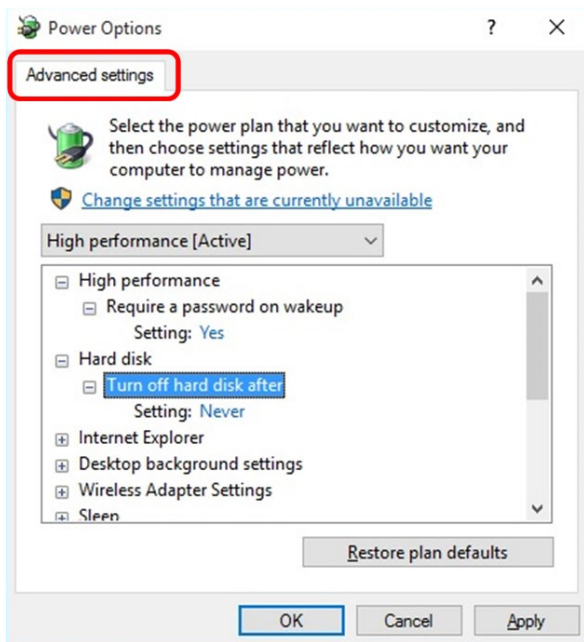
Status Setting	Value
Hard disk > Turn off hard disk after	Never
Sleep > Sleep after > Allow hybrid sleep (if available) > Hibernate after (if available) > Allow wake timers (if available)	Never Off Never Enable
USB > USB selective suspend setting	Disable
Display > Turn display off after	Never

5. Click **Apply**, then click **OK**

6. Set **Turn off Display** and **Put this computer to sleep** as **Never**

Change settings for the plan: High performance
Choose the sleep and display settings that you want your computer to use.

🕑 Turn off the display: Never

🌙 Put the computer to sleep: Never

Change advanced power settings
Restore default settings for this plan

Save changes   Cancel

7. Click on **Save changes** if the button is enabled.

8. Close the **Power Options** window.

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