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TM002 – Introduction to WiRE and System start-up WiRE™ 5

The aim of this module is to provide a general overview of the WiRE software, and detail the correct procedure for Raman microscope, laser, PC, and software start-up.

Please note that this module is a guide and not a complete protocol.

WiRE software

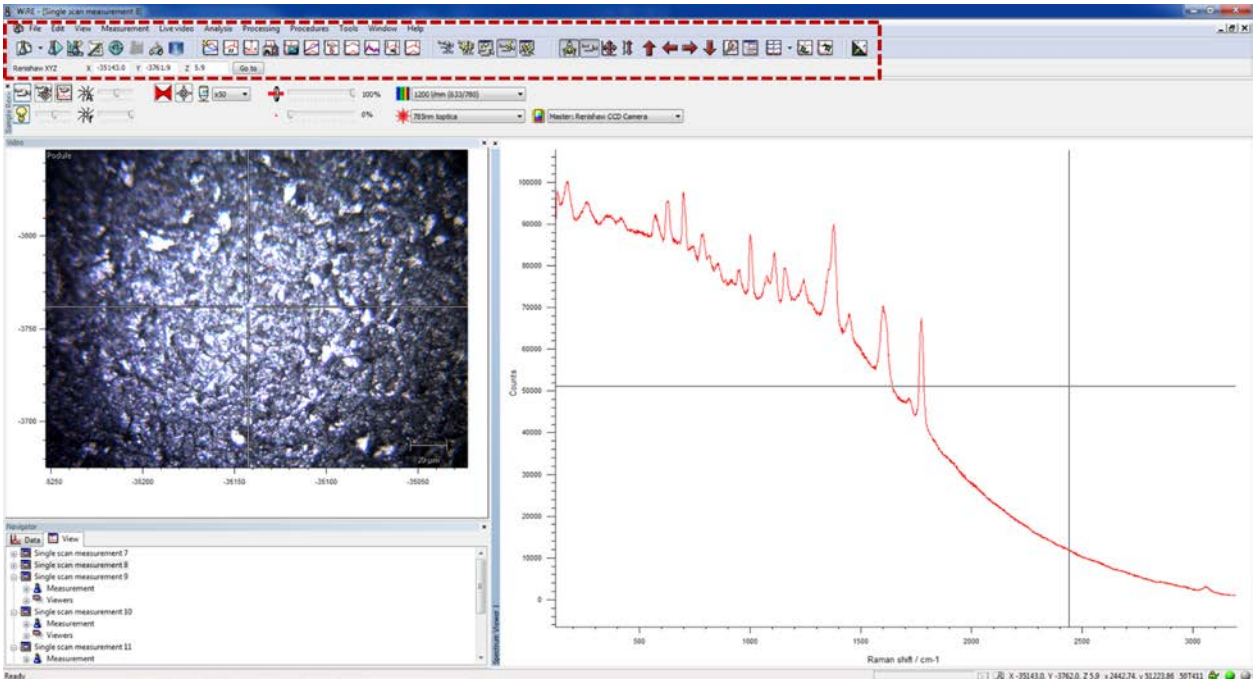
WiRE software is designed to:

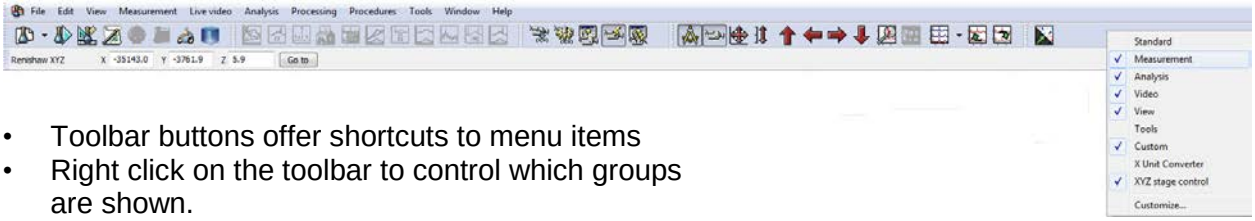
- Control Renishaw Raman instruments
- View the sample
- Control data collection parameters
- View data
- Provide processing functions to improve data
- Provide analysis options to determine information from Raman data
- Enable data and results to be printed and exported for analysis / reporting

Architecture of the WiRE software

Menu and toolbar

Menu and toolbar

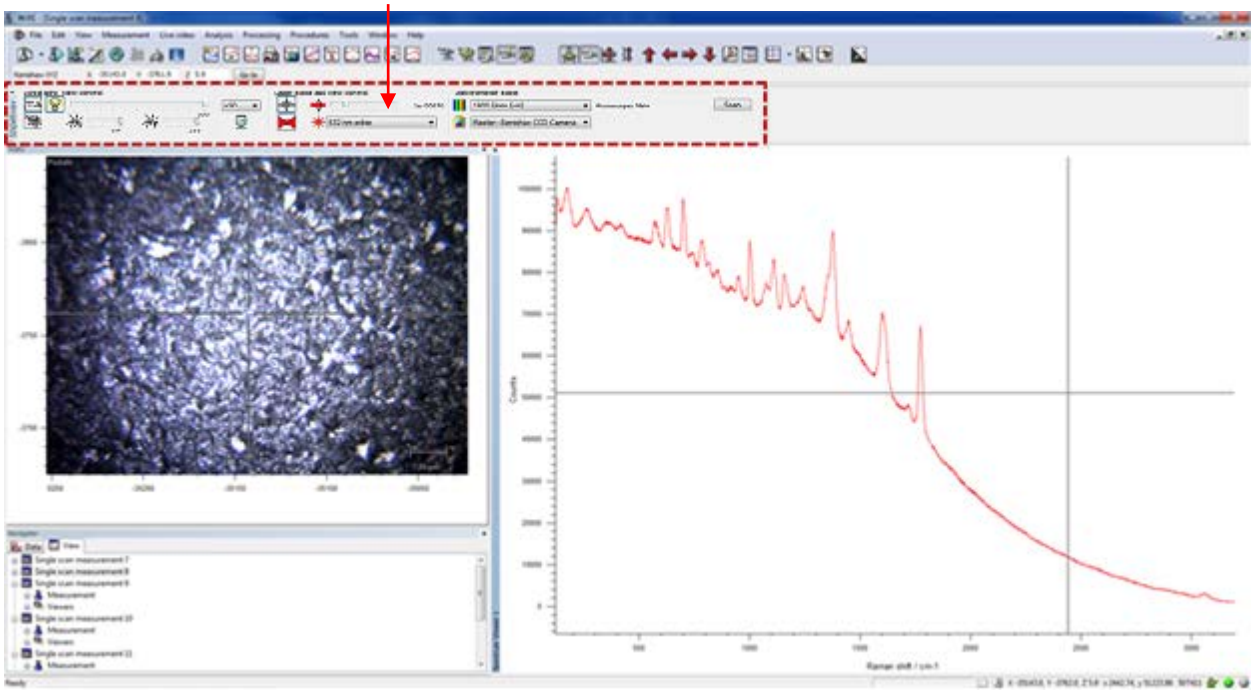


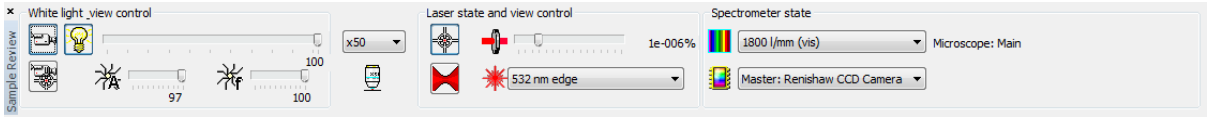


- Toolbar buttons offer shortcuts to menu items
- Right click on the toolbar to control which groups are shown.
- Right click on a group to control the individual buttons which are shown
- The toolbar contents is configurable for different users who log on to the PC

Sample review

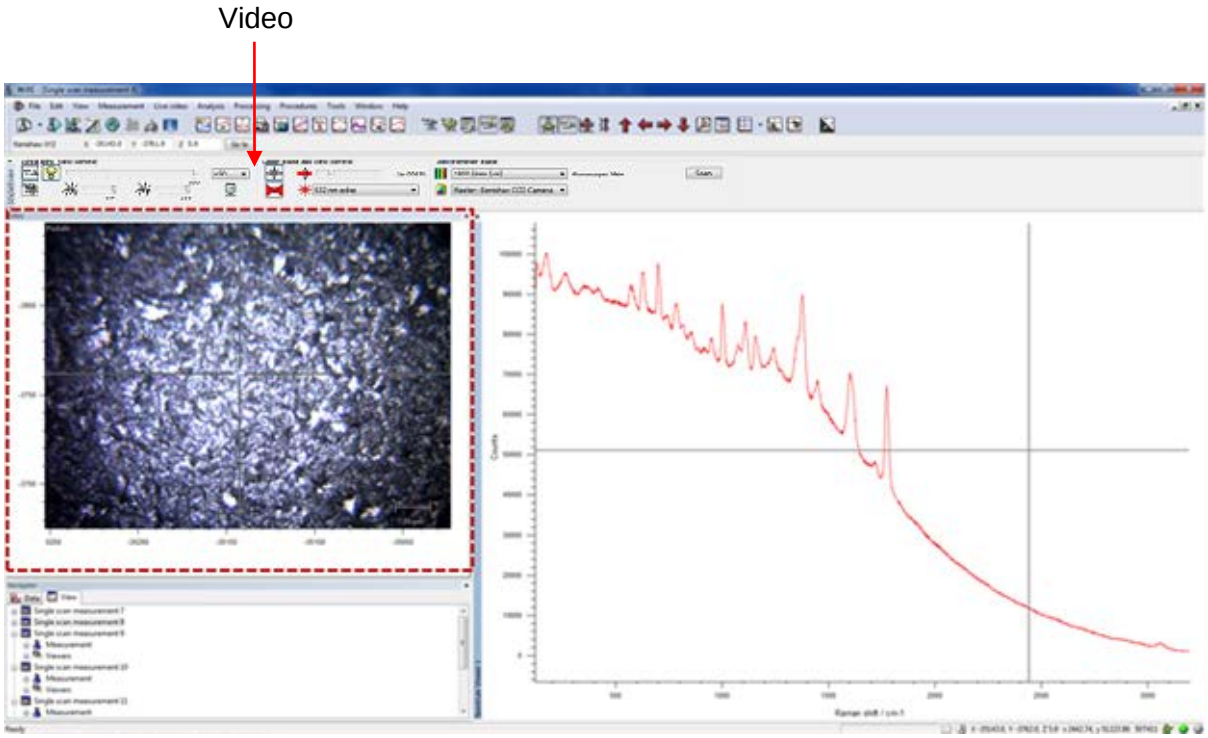
Sample review

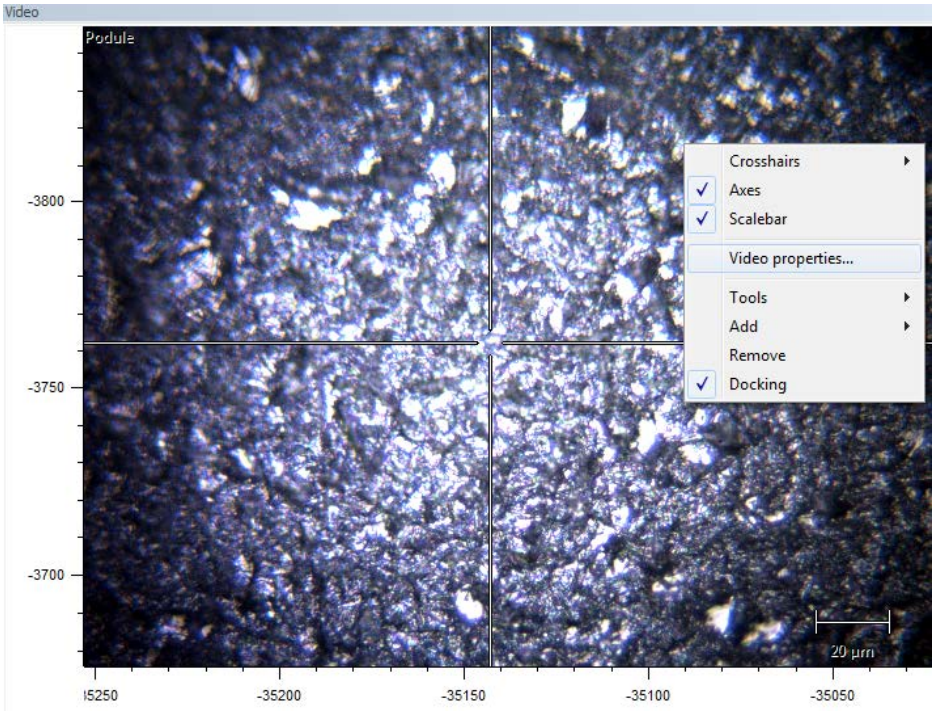




- Controls the view of the sample on the video (white light, and/or laser)
- Aids focussing onto the sample
- Opens/closes the instrument shutter for laser entry into the instrument
- Controls the laser – grating – detector configuration used for new measurements

Video

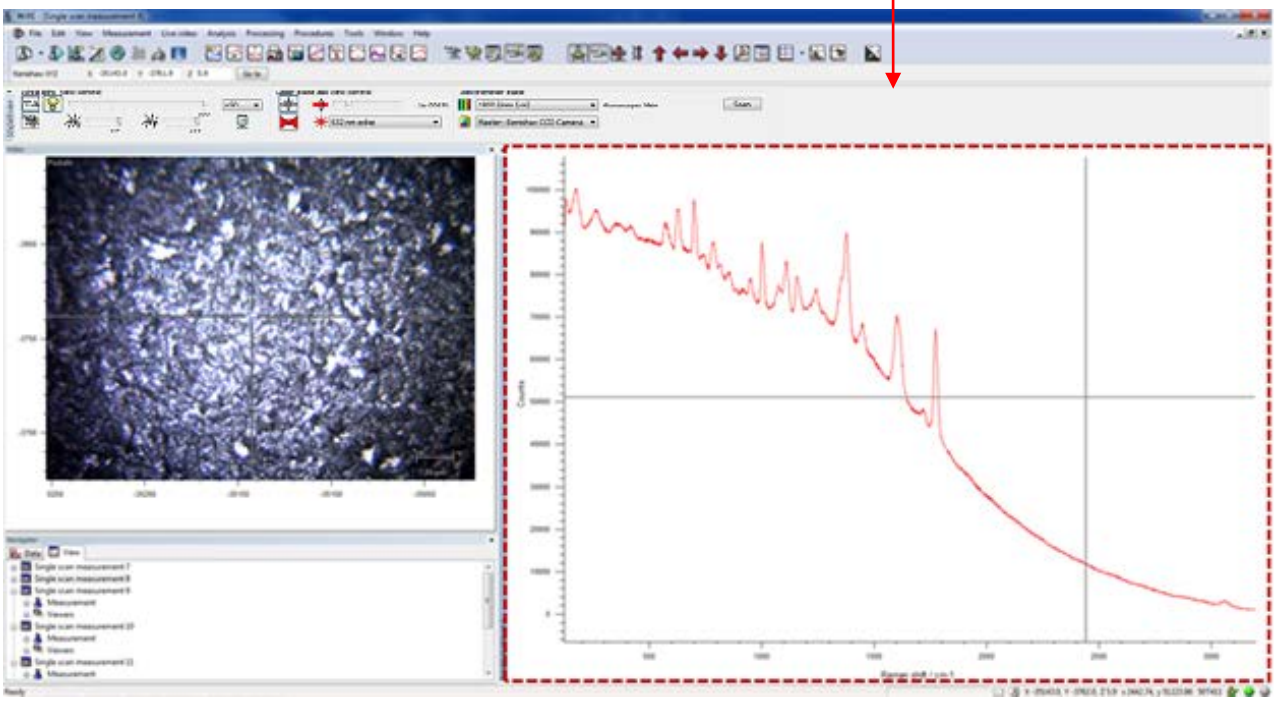


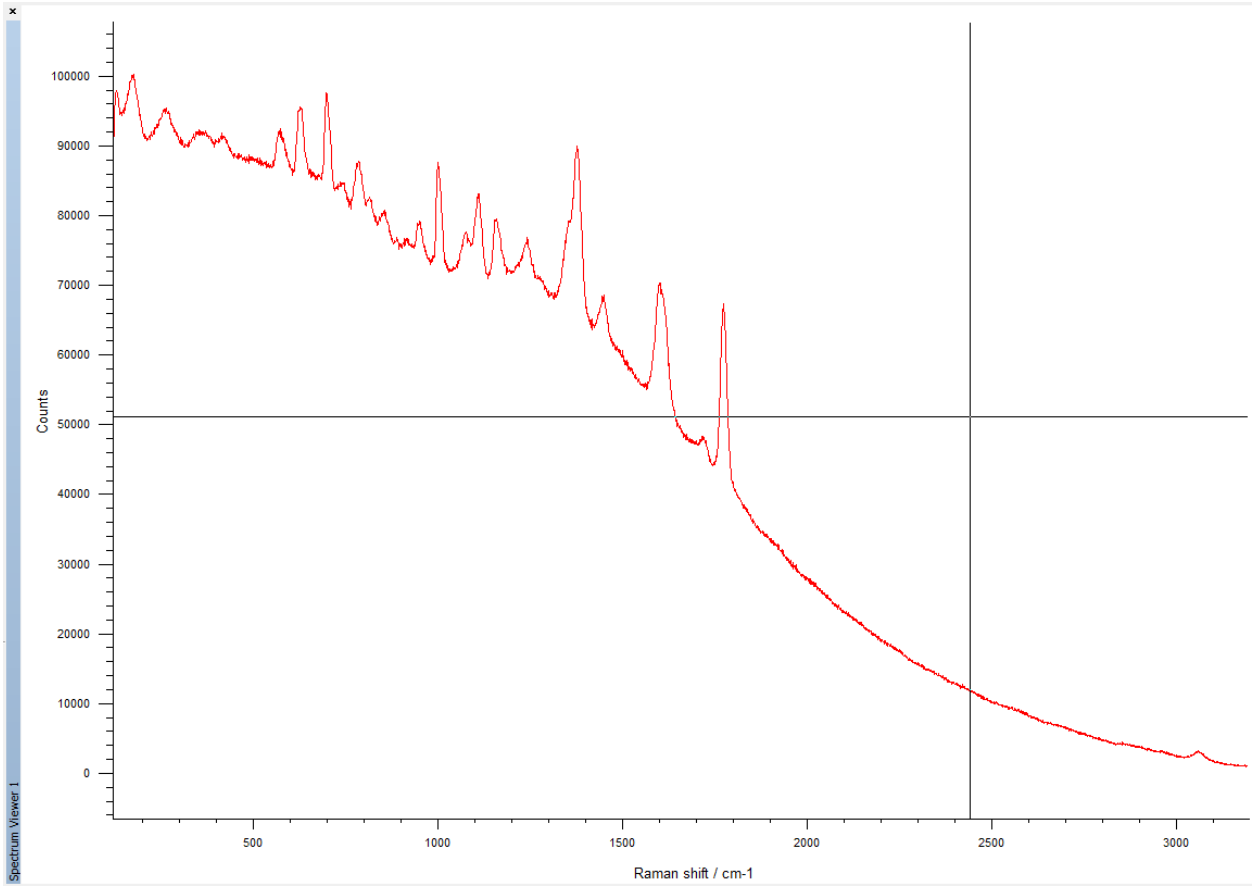


- Turn on/off and change the type of crosshair used
- View the axes
- View the scale bar
- Change the properties for the video display including brightness, contrast, gain and exposure time

Spectrum viewer

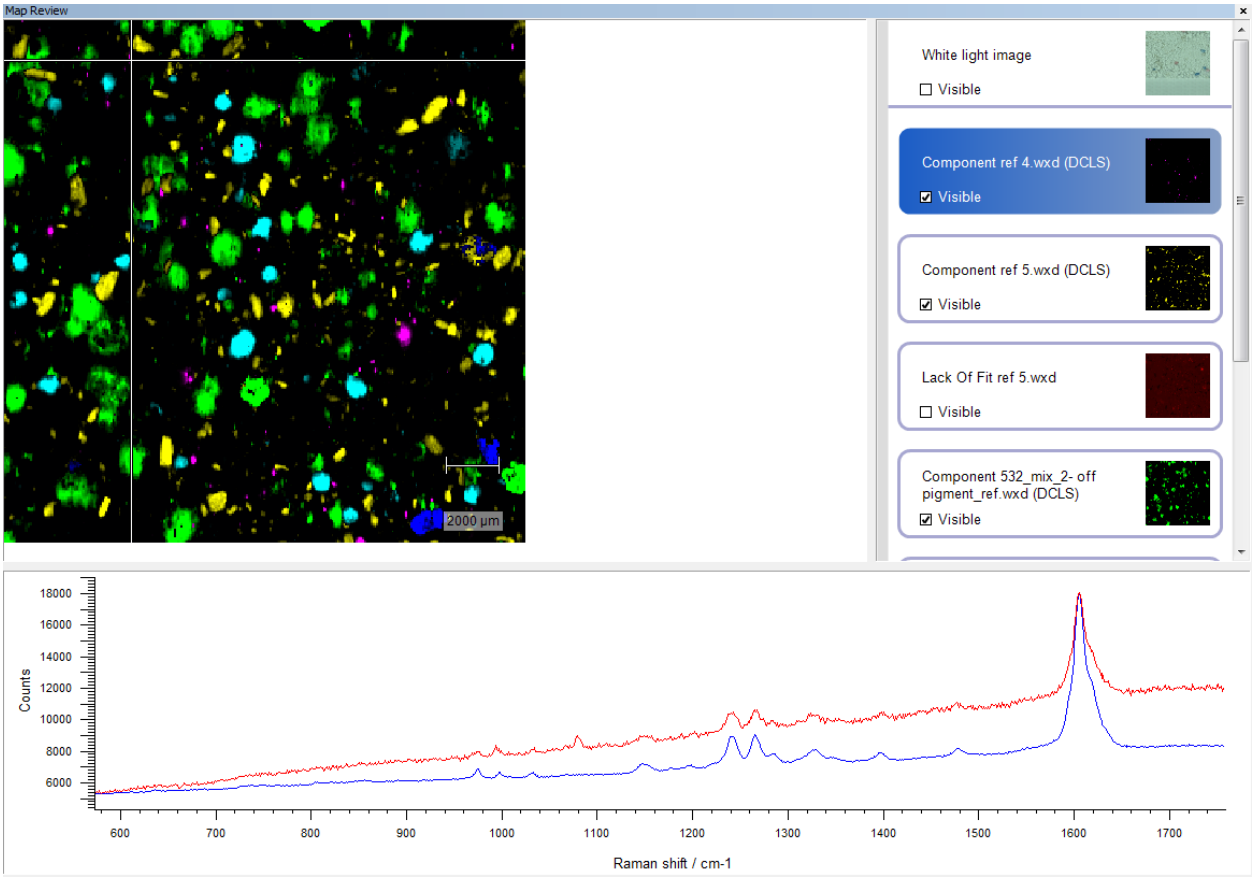
Window with spectrum viewer





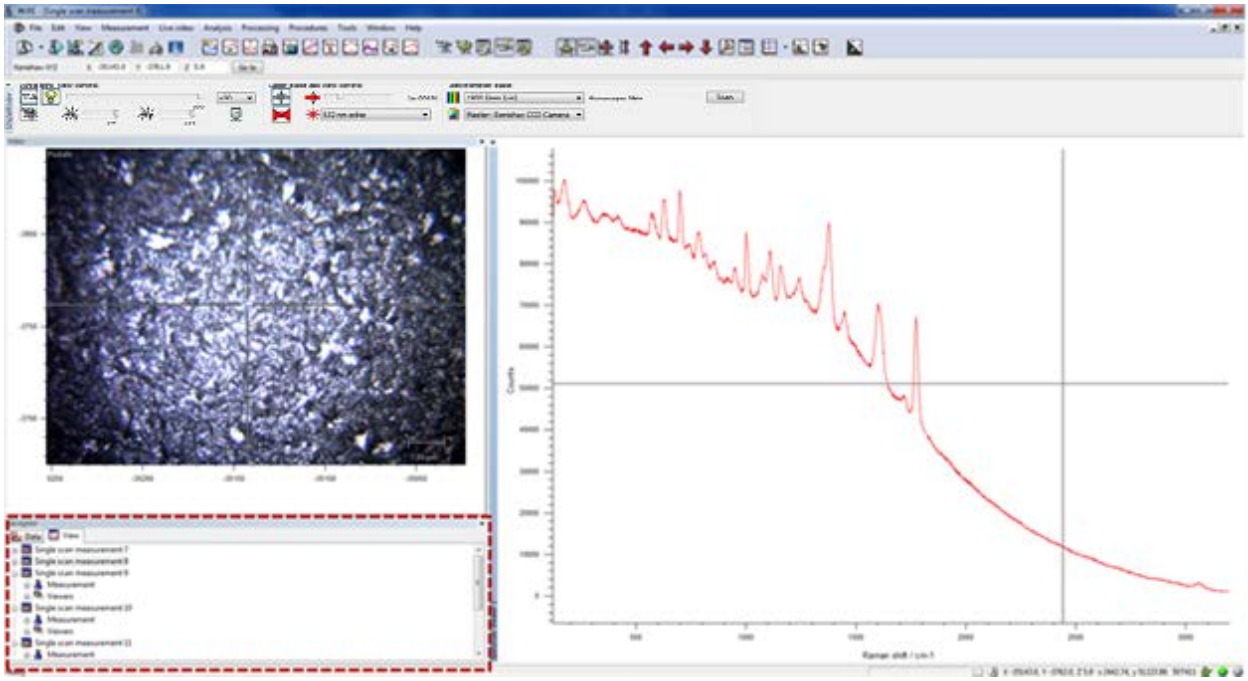
- View and control the spectrum, or spectra
- Control the view (add labels)
- View processing and analysis operations

Map review

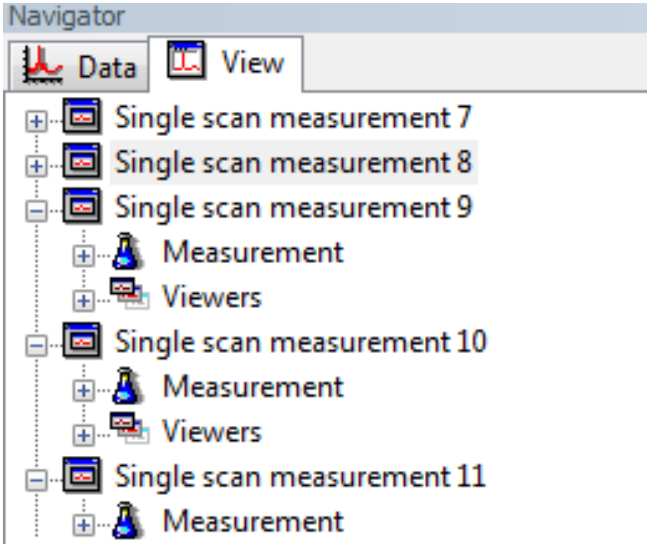


- View the individual or combined white light image and Raman images
- View spectra from different image locations
- Review how spectra have been analysed in conjunction with the Raman image
- Access the look up table to control image colour, contrast and brightness

Navigator

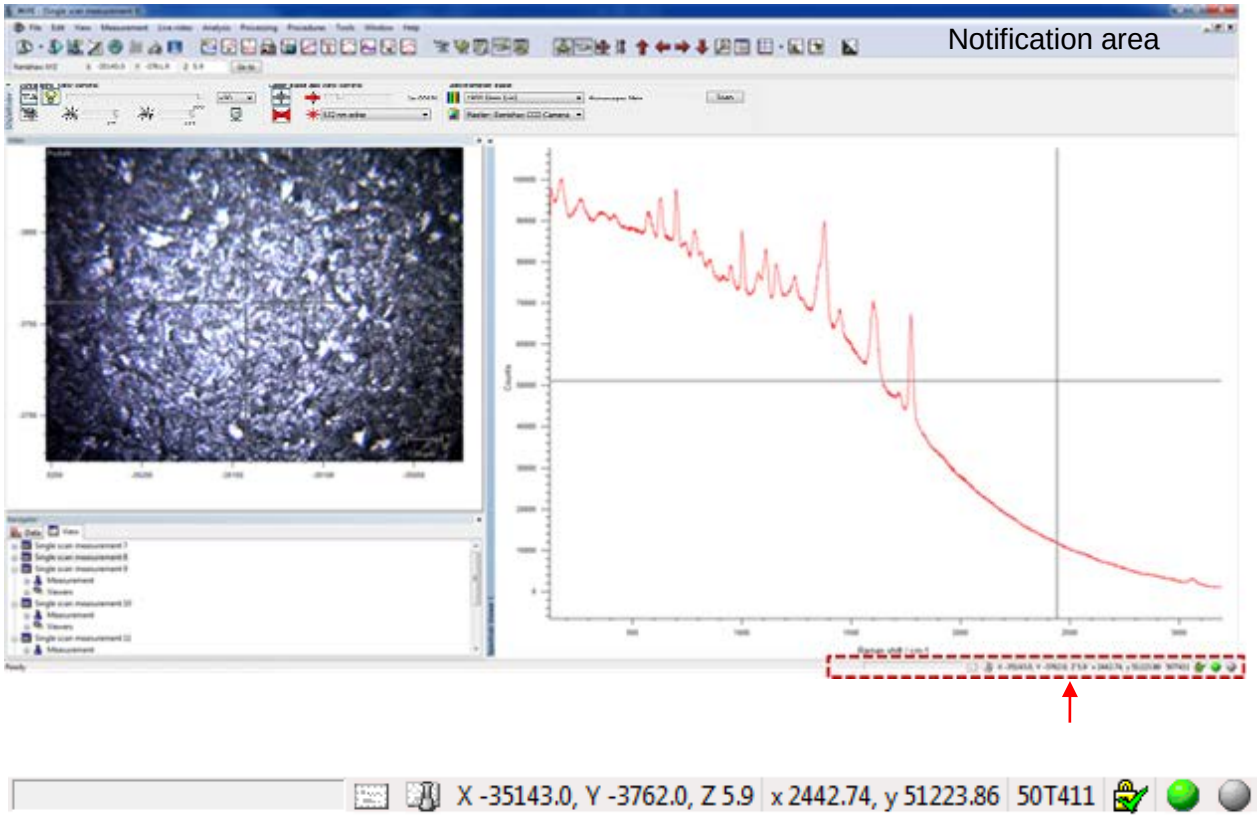


The Navigator



- Enables control of what data is open and where it is viewed
- Windows – Measurement - Viewers and data housed together (different viewers for different types of data)
- Measurement enables identical (or modified) conditions to be used for new data collection

Notification area



- Progress bar indicating data acquisition progress
- File signing when using 21 CFR pt 11
- Sample location within video (XYZ values)
- XY spectrum co-ordinates or XYi Raman image values
- Laser interlock status

Complete system start-up

This procedure assumes all electrical components relating to the use of the inVia Raman microscope are switched off initially, and that the user has suitable knowledge of Renishaw's WiRE 5 software.

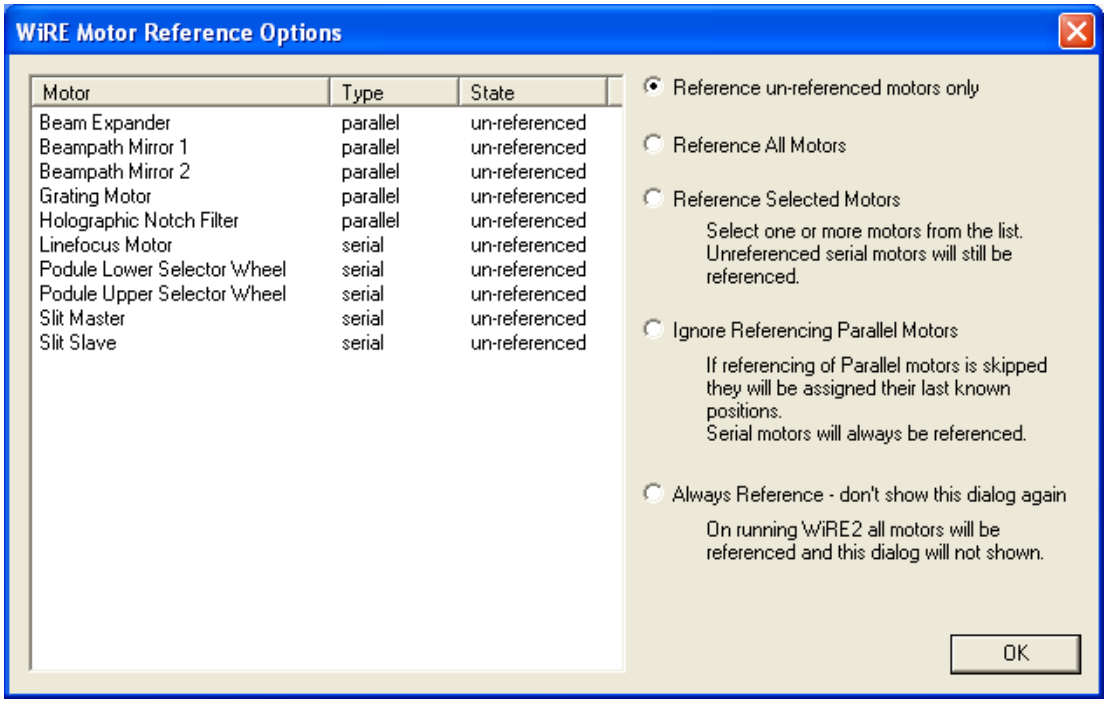
1. Turn **on** the system using the main on/off power button situated to the **right hand** side of the instrument. (the CCD camera will take ~ 20 minutes to cool to its operating temperature).

2. Turn **on** the desired laser(s), and ensure **all keys and switches** are correctly set (please refer to the laser user manual for individual laser start-up procedures)

3. The laser interlocks will not be activated until the WiRE 5 software has been opened. From point of lasing each laser requires at least 30 minutes to reach optimal pointing and power stability.

4. Turn on the PC, and run the WiRE 5 programme.

5. The software will prompt for a position check of the relevant motors.



6. Choose the ‘Reference un-referenced motors only’ option, and click on ‘OK’.

Partial system start-up

Typically some of the components will already be on when the system is to be used, and therefore the start-up procedure should be modified accordingly.

The following is an example of how the system might usually be found, and the correct procedure, in this case, to complete the initial start-up.

Example 1
The inVia Raman microscope is **on**, and the PC is **on** and the WiRE 5 programme is **open.** All lasers are **off**.

1. Clear all data and windows from WiRE 5 (checking that no unsaved data is further required).
2. Turn **on** the appropriate laser(s).
3. Wait for the required time period for the optimum laser stability to be reached.

Example 2
The inVia Raman microscope is **on**, and the PC is **on** and the WiRE 5 programme is **closed.** All lasers are **on**.

1. Open WiRE 5 (there will be no prompt for motor referencing as the current state of the motors will be recognised by the software, and referencing is not necessary).
2. The laser state will not change and all lasers will remain on.
3. The system can be used immediately.

Example 3
The inVia Raman microscope is **on**, and the PC is **on** and the WiRE 5 programme is **closed.** All lasers are **off**.

1. Turn **on** the appropriate laser(s).
2. Run WiRE 5 (there will be no prompt for motor referencing as the current state of the motors will be recognised by the software, and referencing is not necessary).
3. Wait for the required time period for the optimum laser stability to be reached.

Having powered up all the system components, and waited for stability to be reached, the system is now ready to be configured.