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Micro-spectroscopy Plugin for Micro-Manager

The Micro-spectroscopy Plugin once downloaded is an interface available via the main Micro-Manager application. It will track individual tracks of an acquisition and plot the data on a chart. The chart data will be made up of wavelength positions on the X axis and the corresponding pixel intensity on the Y axis.

Downloading the Plugin

The plugin is available for download via the MyAndor website which can be found at <http://my.andor.com/>.

Navigate your browser to the address and then under the Software section of the website, choose Utilities.

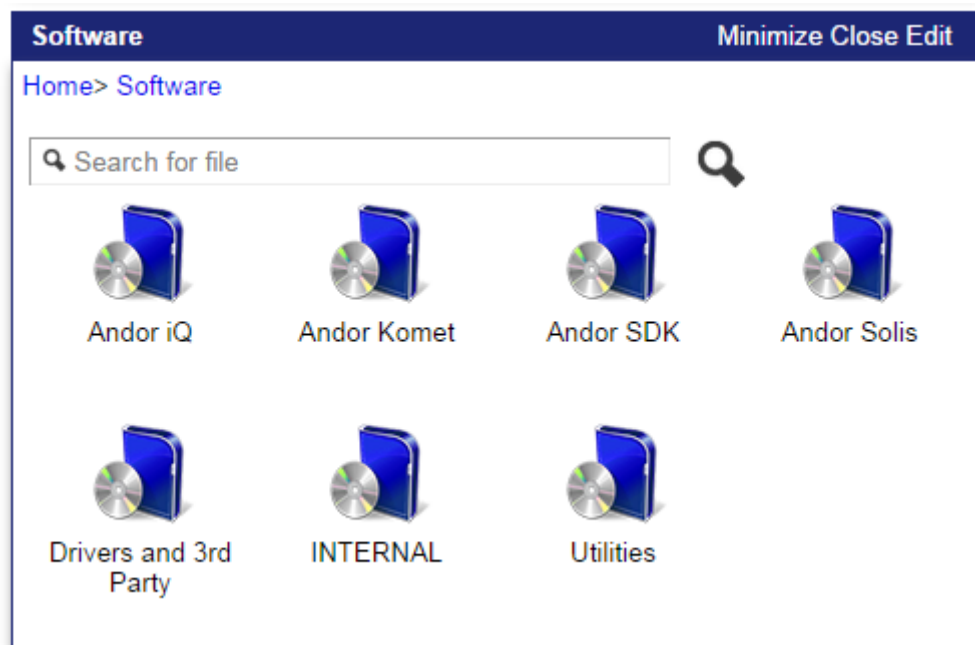


Figure 1 - Software > Utilities

The plugin should be listed here with a large download button beside it. Clicking this should automatically begin the download of the plugin to the user's computer.

Installing the Plugin

To install the plugin, you must first have the latest Micro-Manager installed. This can be obtained from their website at https://www.micro-manager.org/wiki/Download_Micro-Manager_Latest_Release.

Once the application has been installed, the 'Andor' folder from the plugin directory must be copied to the 'mmpugins' directory of the Micro-Manager install.

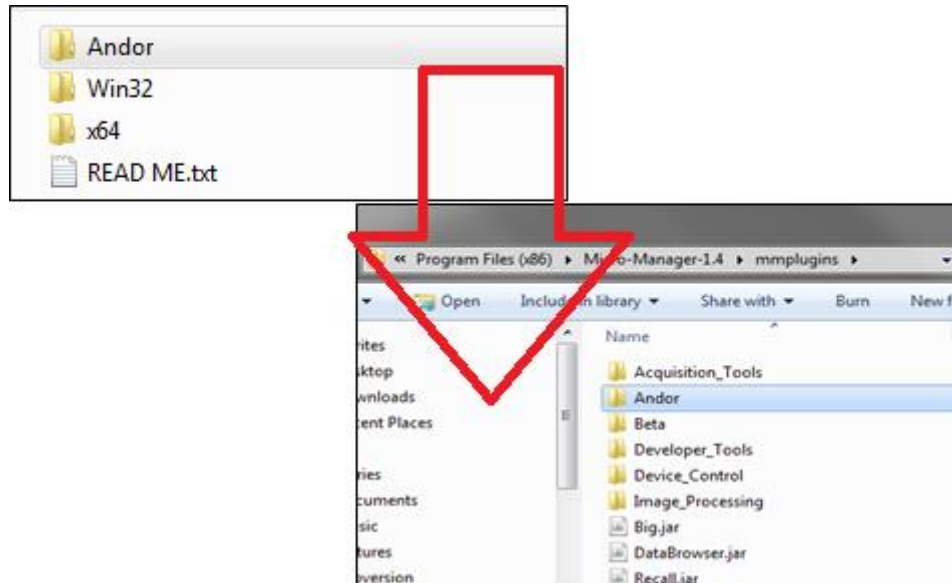


Figure 2 - Copy Andor folder to mmpugins

From there, follow the usual setup steps in regards to configuration files for the camera that is being used. Once the system has fully loaded the camera, the plugin can then be opened by choosing **'Plugins -> Andor -> Microspectroscopy Plugin'**.

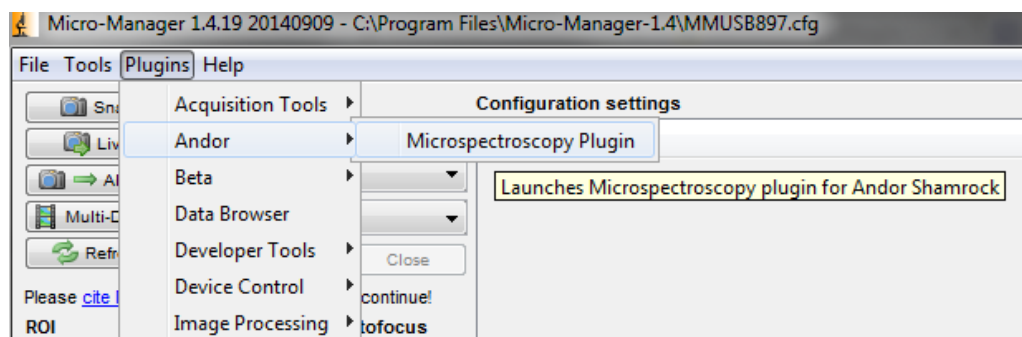


Figure 3 - Launching Plugin

Using an Andor Shamrock

If you are planning on using an Andor Shamrock system in conjunction with this plugin, you must download the Andor Shamrock device adapter from MyAndor and copy the relevant 32-bit or 64-bit DLLs named '**mmgr_dal_AndorShamrock.dll**', '**atshamrock.dll**' and '**ShamrockCIF**' from the folder to the top level of the Micro-Manager install directory.

Once these files are in place, the attached Andor Shamrock should be available to add to a configuration file via the '**Hardware Configuration Wizard**'.

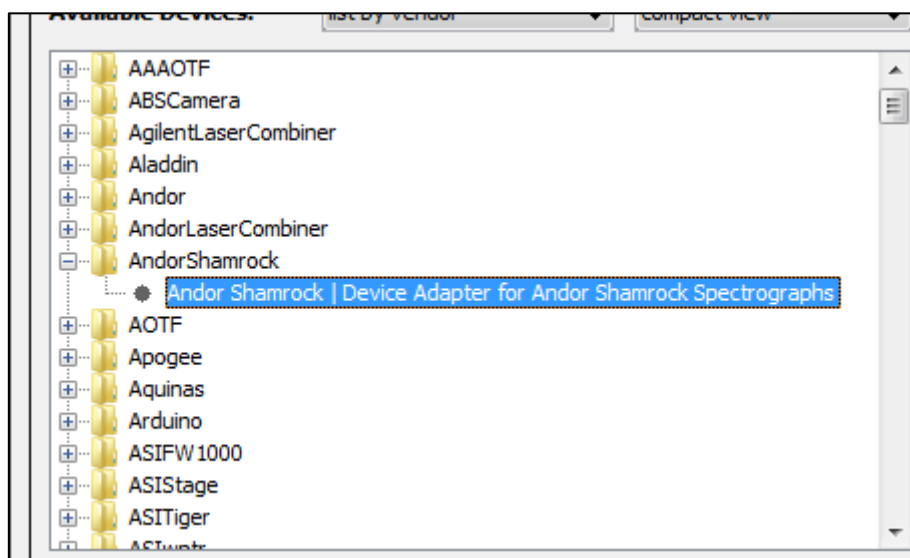


Figure 4 - Andor Shamrock Configuration

When the configuration containing the Shamrock has been loaded, the properties of the device should now be available in '**Property Browser**'.

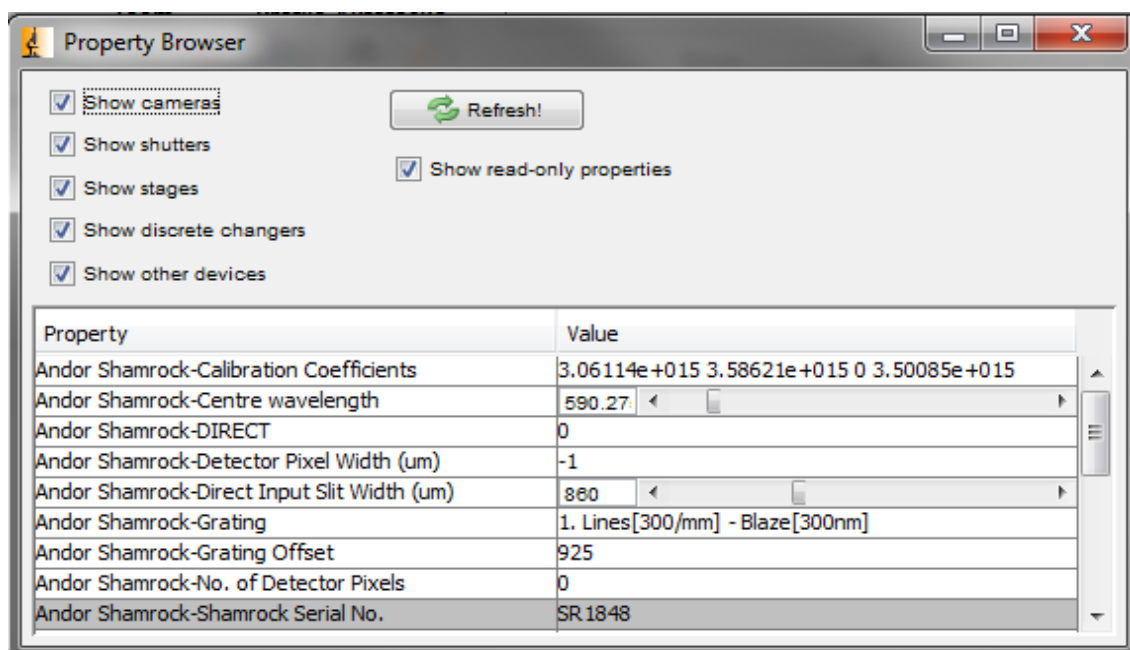


Figure 5 - Andor Shamrock Property Browser

Using a Microscope

Microscope devices can be added in much the same way as any other device is added in Micro-Manager. It is important that all device drivers that came with the chosen microscope be installed before doing so though.

Begin by opening the Hardware Configuration Manager and choosing whether to modify the current configuration or create a fresh one. It will most likely be the case that the Stage device will be used in conjunction with a camera and Shamrock device so modifying the current configuration will be the option to choose.

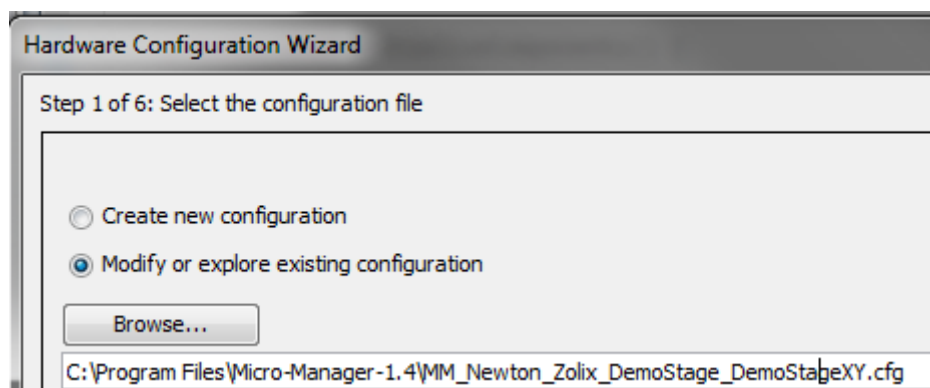


Figure 6 - Modify Existing Config

The microscope used in this document is an Olympus IX81 which can be found under the Olympus folder when adding devices.

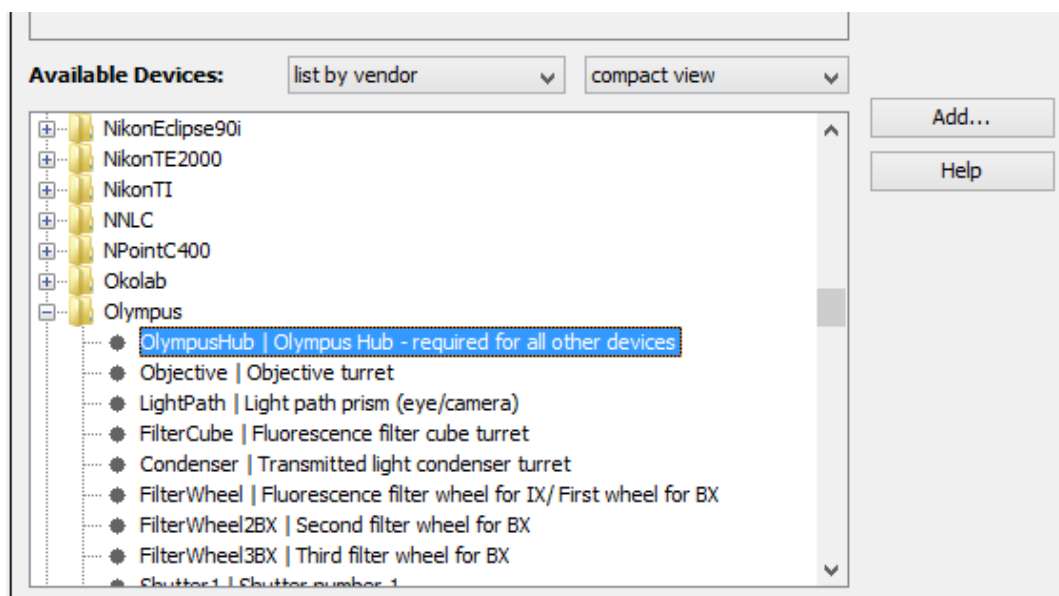


Figure 7 - Adding Olympus Hub

As it specifies on the Olympus wiki section of the Micro-Manager website, the hub device must be added to begin with before adding stage devices, filter wheels or any other devices (<https://micro-manager.org/wiki/Olympus>).

When adding this device, the user will be asked which COM port the device is connected to. This dialog has a button that will scan and find the COM port automatically if needed.

Label:

Initialization Properties

Device	Property	Value
OlympusHub	Port	COM5

Port Properties (RS 232 settings)

Device	Property	Value
COM5	AnswerTimeout	500.0000
COM5	BaudRate	19200
COM5	DelayBetweenCharsMs	0.0000
COM5	Handshaking	Off
COM5	Parity	Even
COM5	StopBits	2
COM5	Verbose	1

Figure 8 - Choosing COM port for Microscope

Once added, this device can now be viewed from the Property Browser window much like any other device.

☒ Show cameras

☒ Show shutters ☒ Show read-only properties

☒ Show stages

☒ Show discrete changers

☒ Show other devices

Property	Value
OlympusHub-Control	Computer
OlympusHub-Description	Olympus Hub
OlympusHub-Model	IX2
OlympusHub-Name	OlympusHub
OlympusHub-Version	V02.01.01,V01.02.01,V01.03.01
Core-AutoFocus	
Core-AutoShutter	1
Core-Camera	
Core-ChannelGroup	
Core-Focus	
Core-Galvo	
Core-ImageProcessor	
Core-Initialize	1
Core-SLM	
Core-Shutter	
Core-TimeoutMs	5000
Core-XYStage	

Figure 9 - Olympus IX81 Property Browser

Using the Plugin

As long as the plugin has been opened, it will capture any data that is acquired via the Micro-Manager snap and live controls then plot that data on a chart line-by-line. The controls below the chart can be used to step through each acquired track of image data.

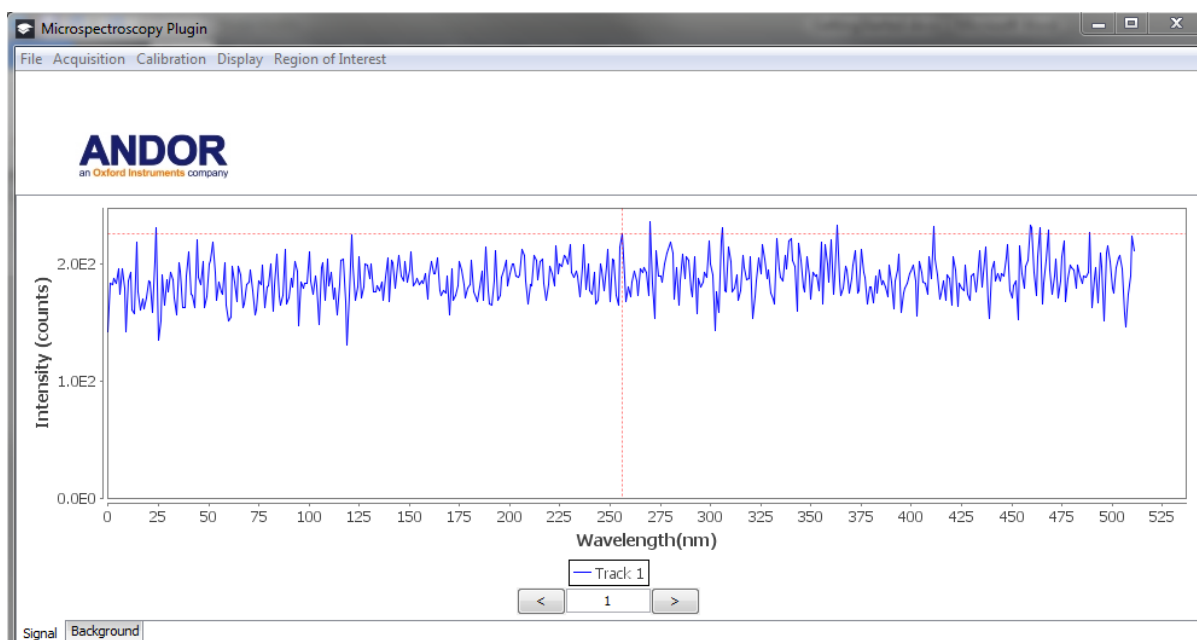


Figure 10 - Acquired data plotted on chart

This plugin works best when used with the newly added Full Vertical Binning (FVB) option available in compatible cameras along with a Shamrock spectrograph. The new FVB option can be set from the Property Browser by choosing it from the dropdown beside the 'ReadMode' property.

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