UPDATED 24 APRIL 2015

Using a Prior Controller with  $\mu Manager$ 

## Setting Up A Prior Controller with µManager

Both the ProScan and the OptiScan series of Prior Controllers may be used with Micromanager.

If you have any problems using your Prior equipment with  $\mu$ Manager please do not hesitate to contact Prior Scientific. However,  $\mu$ Manager is not produced by Prior Scientific and as such the support we can offer you when using this software is limited; if the problem lies with the software itself, or with your computer, we would advise contacting the software distributors directly.

Firstly, ensure that the controller is powered up and switched on, and is connected to both your computer and to any ancillaries. The controller may be connected by either RS232 or via USB. Ensure you make a note of the COM port. Ensure that  $\mu$ Manager is fully installed on your computer. Start the program and go to the 'Tools' menu.

F	ile Tools Plugins	5 Help	
[	Snap	Camera settings	Configuration settings
Ì	👰 Live	Exposure [ms]	Group
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ĺ	Multi-D Acq.	Shutter	
(	🤣 Refresh	Auto shutter 🔽 Close	
F	Please <u>cite Micro-Ma</u>	nager so funding will continue!	
ļ	ROI Zoor	n Profile Autofocus	
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Ir	mage info (from cam	nera): $0 \times 0 \times 0$ , Intensity range: 0 bit	ts, 0nm/pix
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Select the 'Hardware Configuration Wizard' from the drop down menu that appears.

3	Refresh GUI	Configuration settings
	Rebuild GUI	Group
	Script Panel Shortcuts Device Property Browser	
	Stage Position List	
	Multi-Dimensional Acquisition Mouse Moves Stage (Use Hand Tool)	Group: +
naç		s, 0nm/pix
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	Switch Hardware Configuration	
	Save Configuration Settings As	
	Options	

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Select 'Create new configuration' and then click 'Next'.

Step 1 of 6: Select the configuration file	
Create new configuration     Modify or explore existing configuration     Browse	Welcome to the Micro-Manager Configuration Wizard
C:\Program Files\Wicro-Manager-1.4\hamxy.cfg	<ul> <li>The Hardware Configuration Wizard will help you setup Micro-Manager software to work with your hardware.</li> <li>In this first step you can choose whether to create a new hardware configuration or modify an existing one.</li> <li>At the end of the wizard sequence, or any time you quit the wizard, you will be given a chance to give the configuration file a name.</li> </ul>
	< Back Next >

Scroll down to the Prior Folder under 'Available Devices' . Select the 'XYStage/XY Stag' and click 'Add'.

	vices:				
Name	Adapter/Library	Description	Status	Edit	Adding or Removing Devices
ore	MMCore/Default	Core controller	Default	Peripherals	
				Remove	<ol> <li>The list above displays all of the devices that will be handled by Micro-Manager in this configuration file.</li> <li>If you are making a new configuration file for the first time, please visit the Micro-Manager website</li> </ol>
railable De	vices: [list by vendor	r v [cc	mpact view	▼ Add	<ul> <li>(www.micro-manager.org) an look under Devices to find instructions for setting up all your devices.</li> <li>You can begin adding new</li> </ul>
- Prior	utter-1   Pro Scan shutter 1	1		Help	(click 'Add' button). If you
<ul> <li>Sh</li> <li>Sh</li> <li>Lu</li> <li>W</li> <li>W</li> <li>W</li> <li>W</li> </ul>	utter-2   Pro Scan shutter 2 lutter-3   Pro Scan shutter 3 men   Lumen 200Pro lamp sl heel-1   Pro Scan filter whee heel-2   Pro Scan filter whee heel-3   Pro Scan filter whee	2 3 hutter el 1 el 2 el 3			need more help with deciding which devices to add, highligh a particular device and click Help (it really helps!). 4. While adding a device you can

The following screen will appear. Click on the white box under 'Value' in 'Initialisation Properties' and select the correct COM port (this can be found by going into 'Device Manager' and selecting 'Ports' – the correct port should be labelled 'Prior'). Then click 'OK'. A new screen will appear. Ensure the correct values are set for the Baud Rate and other variables, before clicking 'OK'.

Device	Property	Value	
XYStage	Port	COM1	
Port Properties (RS	232 settings)	Scan	
Port Properties (RS Device	232 settings) Property	Scan	
Port Properties (RS Device COM1	232 settings) Property AnswerTimeout	Value 500.0000	
Port Properties (RS Device COM1 COM1	232 settings) Property AnswerTimeout BaudRate	Value 500.0000 9600	
Port Properties (RS Device COM1 COM1 COM1	232 settings)  Property AnswerTimeout BaudRate DelayBetweenCharsMs	Scan Value 500.0000 9600 0.0000	
Port Properties (RS Device COM1 COM1 COM1 COM1	232 settings)  Property  AnswerTimeout BaudRate DelayBetweenCharsMs Handshaking	Scan           Value           500.0000           9600           0.0000           Off	
Port Properties (RS Device COM1 COM1 COM1 COM1 COM1 COM1	232 settings)  Property  AnswerTimeout BaudRate DelayBetweenCharsMs Handshaking Parity	Scan           Value           500.0000           9600           0.0000           Off           None	
Port Properties (RS Device COM1 COM1 COM1 COM1 COM1 COM1 COM1	232 settings)  Property AnswerTimeout BaudRate DelayBetweenCharsMs Handshaking Parity StopBits	Scan           Value           500.0000           9600           0.0000           Off           None           1	

The stage should now be present in the list of 'Installed Devices' and the status should read 'OK' in the 'Hardware Configuration Wizard'.

	Step 2 of 6: Add or remove devices						
Installed Devices:						<b>A</b>	
	Name	Adapter/Library	Description	Status	Edit	Adding or Removing Devices	
	Core	MMCore/Default	Core controller	Default	Peripherals		
	XYStage	XYStage/Prior	XY Stage	OK		<ol> <li>The list above displays all of</li> </ol>	
					Remove	the devices that will be handled	

At this point, repeat this process to add all other Prior equipment in use, as well as any other equipment with external hardware (e.g. microscopes, cameras, etc) before moving on to the next stage. Select the name of the connection on the control unit (e.g. 'Shutter 1') to select the device in question (e.g. a Brightfield LED). Click 'Next' to continue. The following screen will appear. Here you can select the 'Default Devices and Auto Shutter Settings'. Click 'Next' to continue.

Step 3 of 6: Select default devices and choose auto-shutter setting	
Default camera	Default Device Roles  • Micro-Manager treats one camera, shutter and focus stage as "defaults" for the main control window. • Here you can choose the defaults for Micro-Manager strutum
V Auto-shutter	<ul> <li>These default roles can be changed at any time while Micro-Manager is running through the Device Property Browser (as properties of the Core).</li> </ul>

On the next screen , click 'Next' to continue.

Name	Adapter	Delay [ms]	Setting Device Delays
XYStage	XYStage	0.0	
			<ul> <li>Some devices will execute a</li> </ul>
			command but don't signal to
			Micro-Manager when
			execution has completed.
			<ul> <li>These devices may require a</li> </ul>
			delay before Micro-Manager
			can issue the next command.
			For example, after
			commanding a shutter to open
			Micro-Manager may need a
			delay (to wait for the shutter to
			be rully open) before sending
			ule camera a shap image
			- Vey have three entires to
			<ul> <li>Four have three options to determine this delay, time;</li> </ul>
			determine this delay time.
			1. If you are unsure whether a
			device needs a delay, leave the
			parameter at 0 ms.
			<ol><li>Refer to the Device Support</li></ol>
			page in the Micro-Manager
			website and look for
			information on delay settings
			undor voue nortioulas device

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## Again, click 'Next' to continue.

State devices	State	Label	Read	Assigning labels
			Reset	<ul> <li>At left are 'State devices' such as filters, objective turrets, etc., which have discrete positions.</li> <li>Here assign labels corresponding to each position so that you can easily identify them during use. For example. Position 1, Position 2 could be labeled as Cy3, Cy3</li> <li>Select the device in the left-hand list and edit the corresponding position labels in the right-hand 1</li> <li>Note:</li> <li>The Read button will read labels for the selected device directly from the hardware.</li> <li>The Reset button will reset the labels of the selected device to the values they had when you entere this page.</li> </ul>

## Click 'Finish' to save your configuration.

Configuration file:		Finished!
C:\Program Files\Micro-Manager-1.4\hamxy.cfg	Browse	You have successfully <b>completed</b> the Configuration Wizard and the hardware configuration for your system has been
Send configuration to Micro-manager.org		built.
Providing the configuration data will assist securing further project funding.		

## Ensuring that the Controller is working within $\mu \text{Manager}$

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File Tools	File Tools Plugins Help						
📄 Sn:	Acquisition Tools	Þ	Con	figuration settin	gs		
Liv	Beta	Þ	Gro	oup			
→ AI	Data Browser		•				
Multi-D	Developer Tools	Þ	-				
Refr	Device Control	I	ASI CR	ASI CRISP Control			
Please cite I	Live Replay		ASI diS	PIM			
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Contrast	Metadata Comments	Г	Stage Control				
Scale B	Scale Bar Top-Left v White			channels 🗸 Slov	v hist		
Display	y mode: Grayscale	*	Autostre	etch 🔄 ignore %	0.05 📩 🗌 Log h		

To test the stage is working correctly go to 'Plugins', 'Device Control' and then 'Stage Control'.

A pop up screen will appear. This can be used to move the stage in the X and Y direction to ensure the controller is working within  $\mu$ Manager. The degree of movement is controllable by entering new values for each value

🛓 Stag	e Control	
~~	× ×	'Stage
>	0	µm 1 pixel
>>	100	µm 0.1 field
>>>	5,120	µm 1 field

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