

**Manual for
Micro-Manager with
voltage amplifier
NV120/1
NV120/1CLE**



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1 Installation

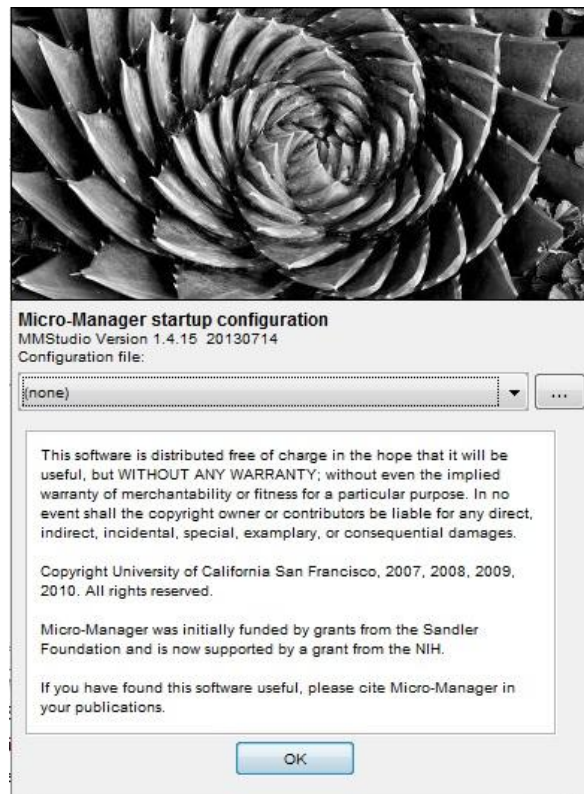
To use the Micro-Manager, a download of the software from the [homepage](#) is required. In this download-package are all needed libraries of the NV40/3CLE included. Please follow the instructions to install it.

If an older version (before 1.4.15) of Micro-Manager is installed, a download of the library of the digital system from [piezosystem jena](#) is required.

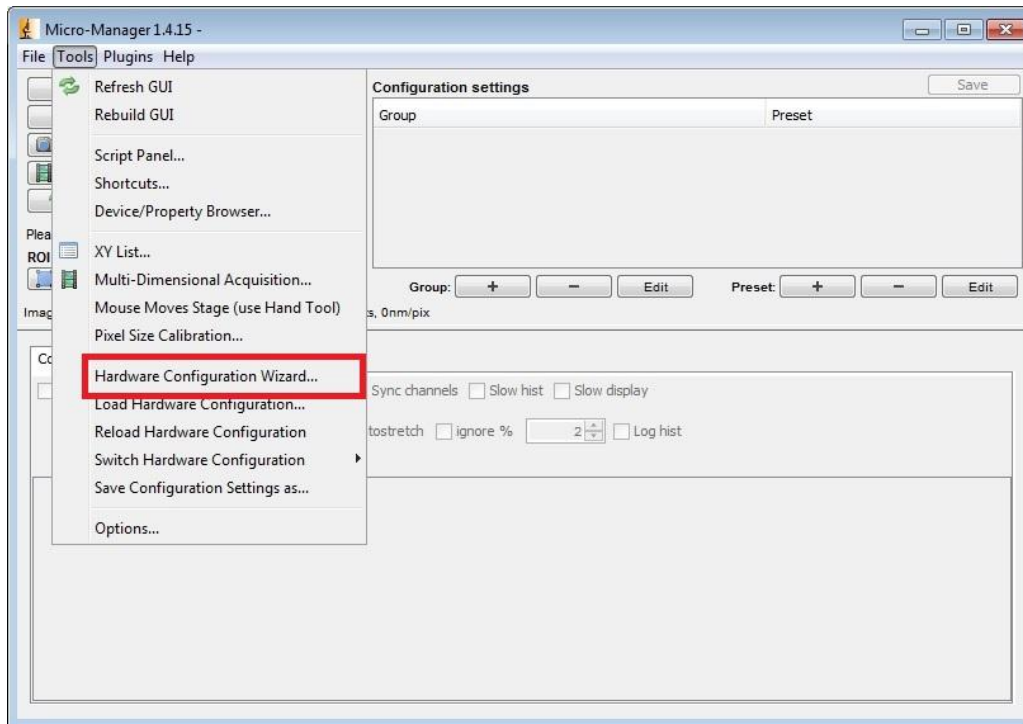
Afterwards the file „ mmgr_dal_Piezosystem_NV120_1.dll “ must be extracted in the main directory of the program. Now you are able to access in program.

2 Hardware-Configuration

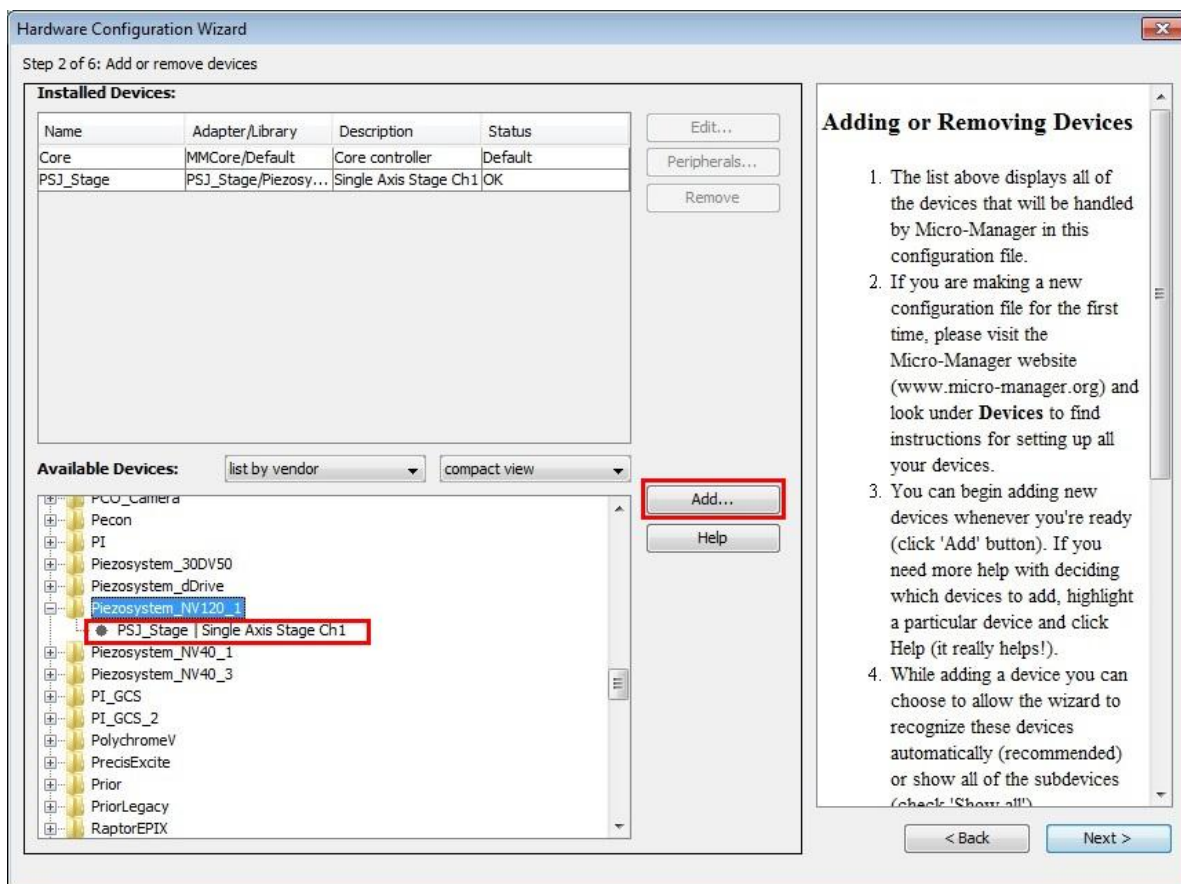
The Micro-Manager should be started without configuration („none“). Please close the Window with “OK”



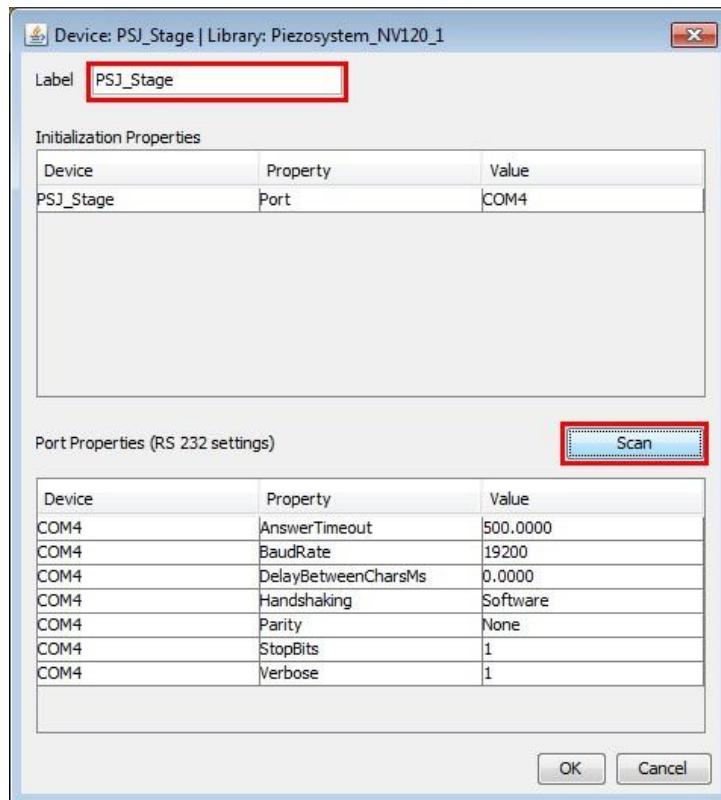
To use the NV120/1CLE, a configuration file must be created. The voltage amplifier must be switched on. To configure please click in Menu **Tools→Hardware Configuration Wizard**



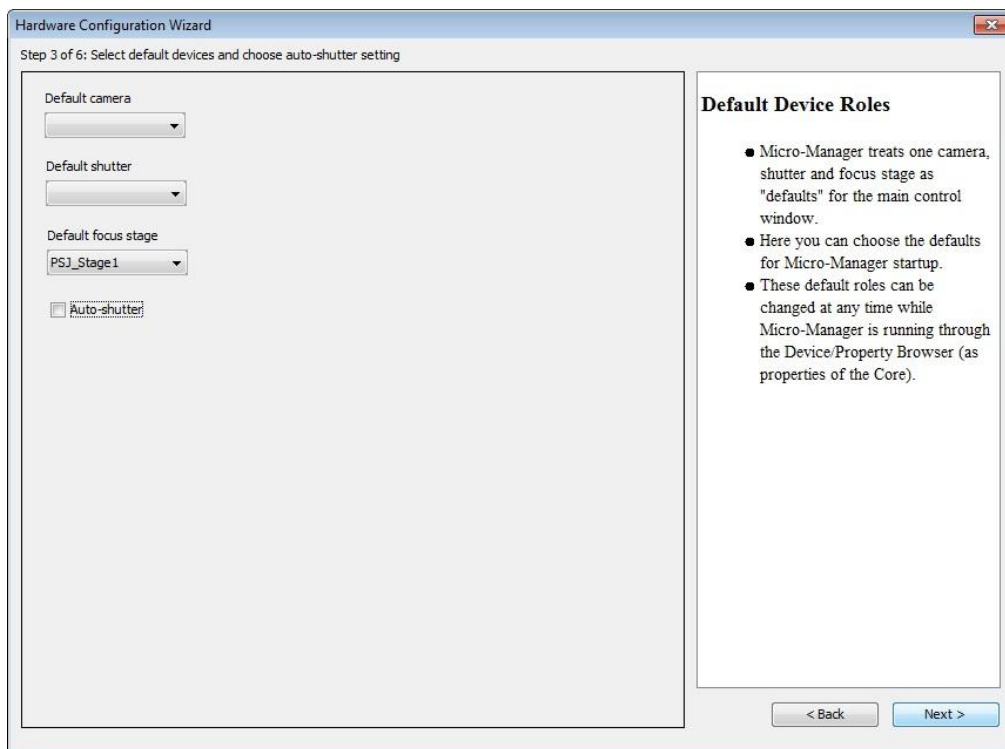
A new window will open. Please go to the second step with button „Next“ and look for Piezosystem_NV120_1 and add it to the list with a double click or push button „Add...“.



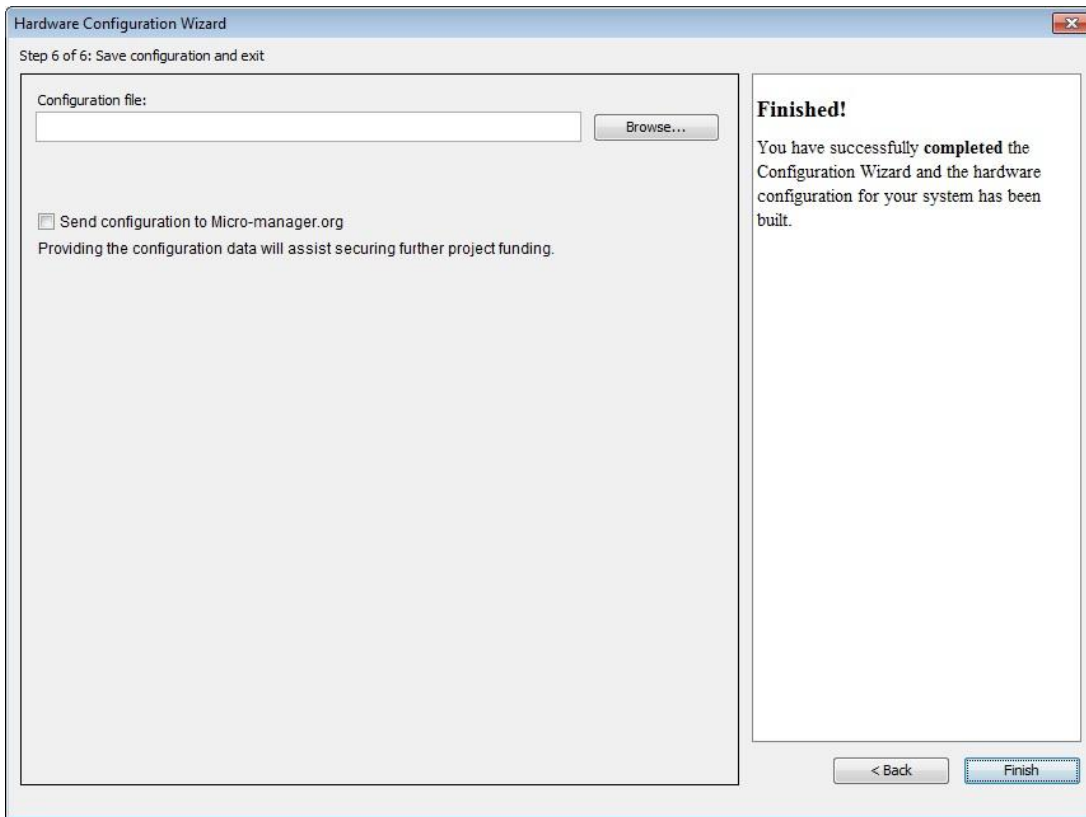
Now a new window is opening for the port setting. Click on the button „Scan“ and let the program search the device. At “Label” you could give the device an own name. Accept the settings with "OK".



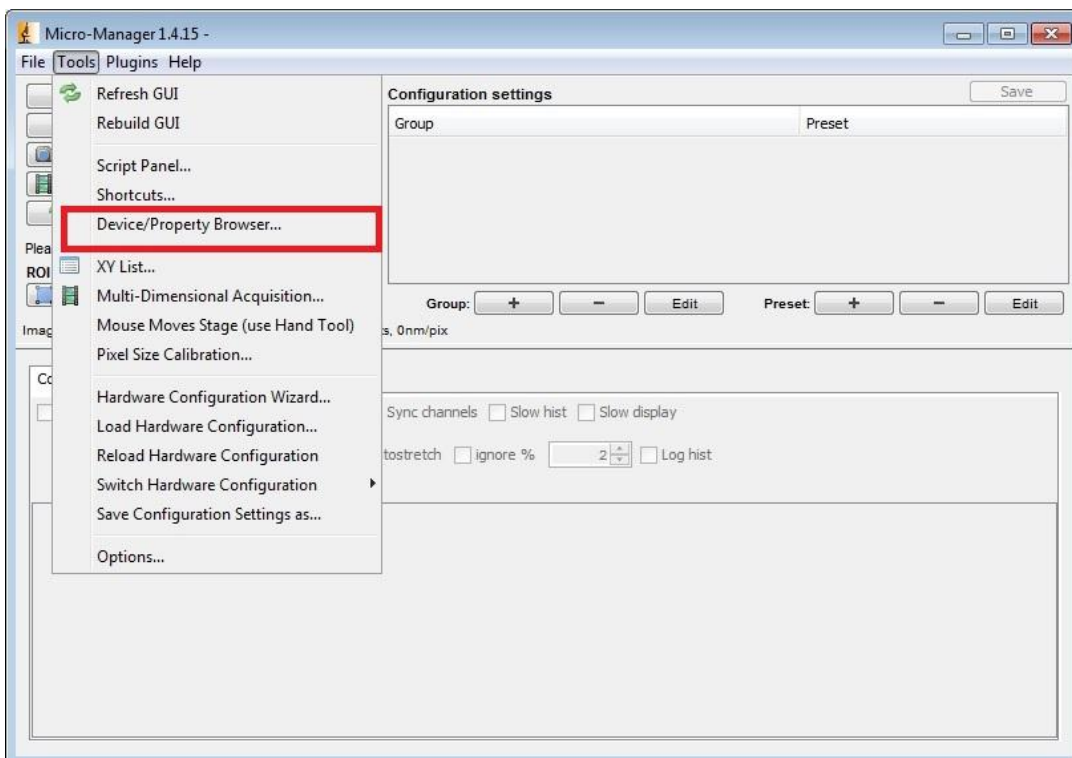
In the subsequent window you could choose default device. This can be changed later again.



Skip step 4 and 5 with “next” and save the configuration in a file. This can be loaded at the next program start. Close the Wizard with „Finish“.



After the successful configuration the NV120/1 can be loaded and handled by the “Property Browser”. It is located at **Tools→Device/Property Browser**



The screenshot shows a 'Property Browser' window with a 'Refresh!' button and several checkboxes for filtering properties. The main area contains a table of properties and their values.

Property	Value
PSJ_Stage-Actuator	PZ300APCD
PSJ_Stage-Axis	Z
PSJ_Stage-Description	Piezosystem stage driver adapter
PSJ_Stage-Limit Voltage max [V]	130
PSJ_Stage-Limit Voltage min [V]	-20
PSJ_Stage-Limit um max [microns]	100
PSJ_Stage-Limit um min [microns]	0
PSJ_Stage-Loop	open loop
PSJ_Stage-Name	PSJ_Stage
PSJ_Stage-Position [microns]	0,0007
PSJ_Stage-Remote control	off
PSJ_Stage-Status	32.832
PSJ_Stage-actuator soft start	soft start disable
PSJ_Stage-display brightness	200
PSJ_Stage-encoder: exponent for calculation of acceleration	1
PSJ_Stage-encoder: interval for close loop [um]	0.1
PSJ_Stage-encoder: interval for open loop [V]	1
PSJ_Stage-encoder: maximum step	100
PSJ_Stage-encoder: mode	EM1: adjustable interval
PSJ_Stage-encoder: sample interval [x * 0.02s]	1
PSJ_Stage-monitor output	0 actuator voltage

The settings are sorted alphabetically. The grey filled fields can only be read and are for information.

3 Edit configuration file in text editor

The configuration file can be edited with any text editor. The following points can be changed:

- label
- COM-Port

Here is an example for a simple configuration.

```
# Reset
Property,Core,Initialize,0

# Devices
Device,COM4,SerialManager,COM4
Device,PSJ_Stage,Piezosystem_NV120_1,PSJ_Stage

# Pre-init settings for devices
Property,PSJ_Stage,Port,COM4

# Pre-init settings for COM ports
Property,COM4,AnswerTimeout,500.0000
Property,COM4,BaudRate,19200
Property,COM4,DelayBetweenCharsMs,0.0000
Property,COM4,Handshaking,Software
Property,COM4,Parity,None
Property,COM4,StopBits,1
Property,COM4,Verbose,1

# Hub (parent) references

# Initialize
Property,Core,Initialize,1

# Delays

# Roles
Property,Core,Focus,PSJ_Stage
Property,Core,AutoShutter,1

# Camera-synchronized devices

# Labels

# Configuration presets
# Group: Channel

# Group: System
# Preset: Startup

# PixelSize settings
```

Please ensure that the name is only used once and commas are not used in the name.

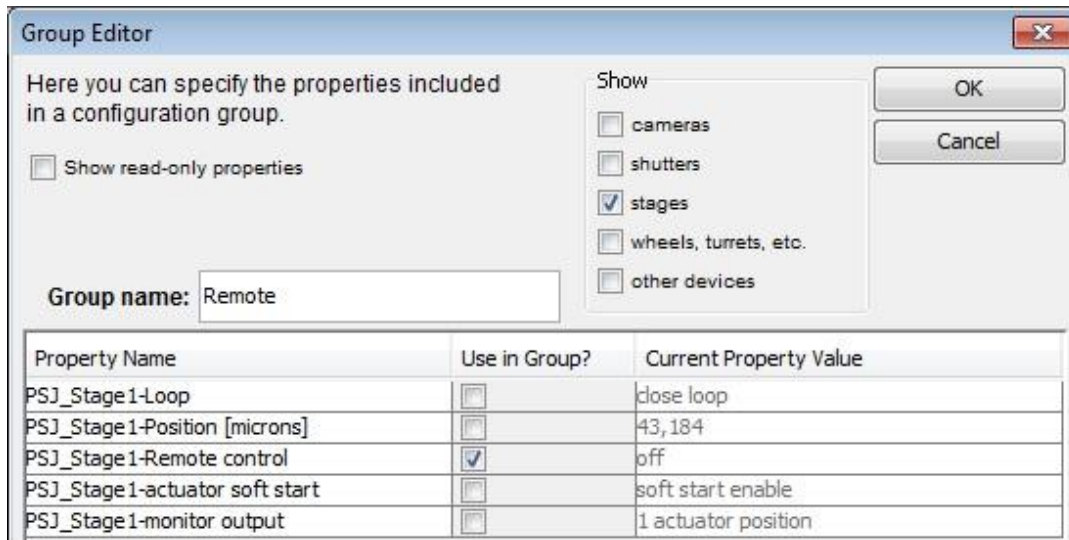
4 Create personal settings

Settings should be done in „Configuration settings“. The Property Browser is very slow and should only give an overview. Personal settings are stored in the configuration file you created earlier.

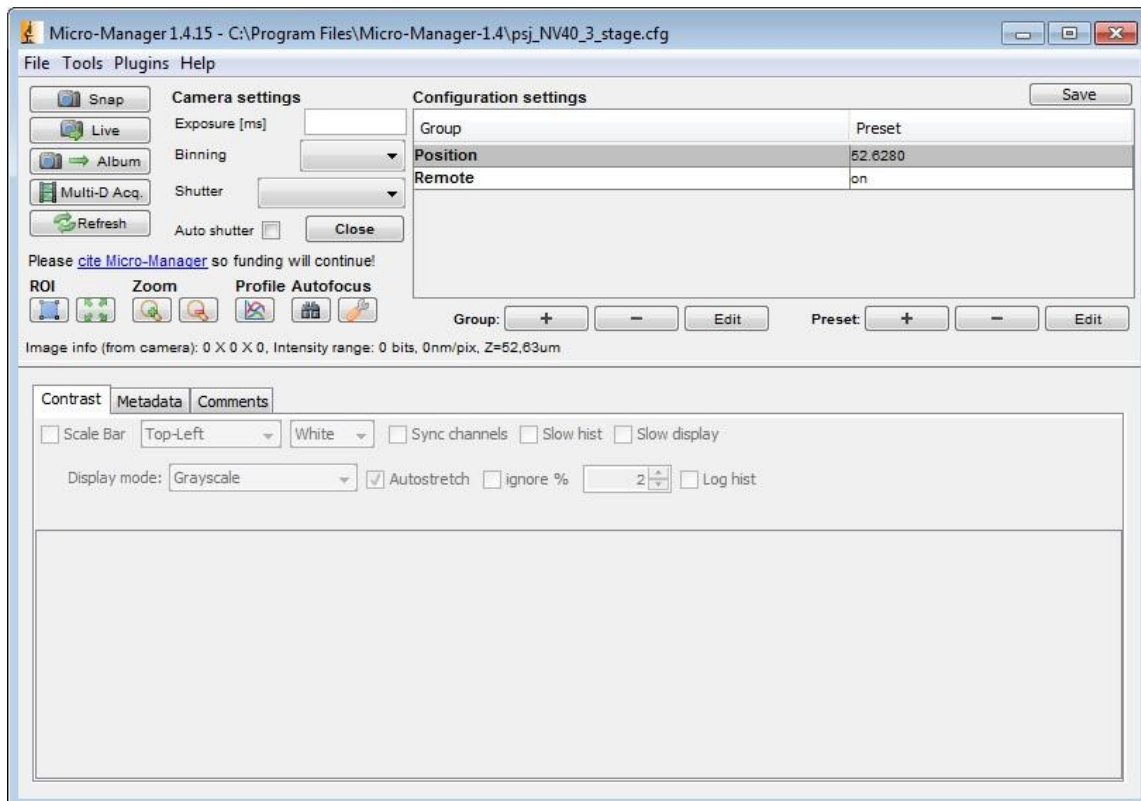
First create a group for setting. Please push the button „+“ at „Group“.



In the “Group Editor” a name for a group can be chosen and the properties be selected. Accept with „OK“.

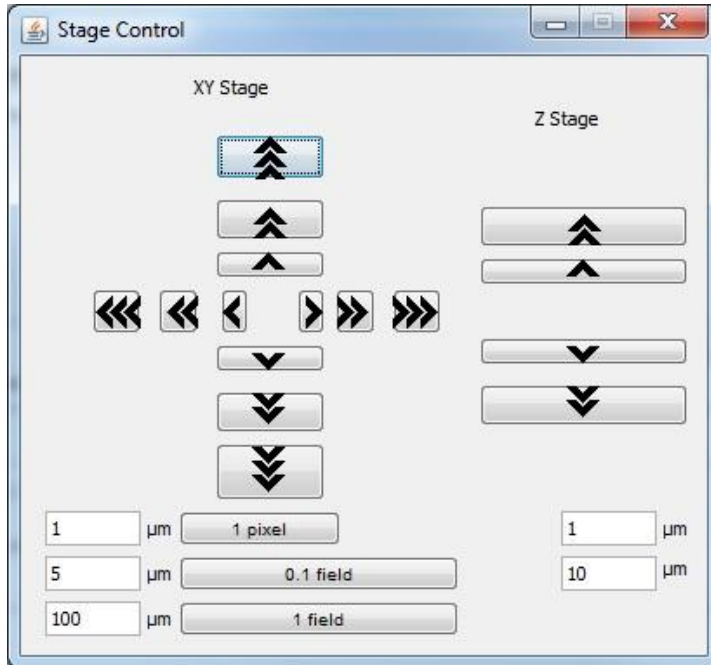


The settings can now be transmitted to NV120/1 in the main window.



5 Control with plug-ins

The position can also be done with the plug-in „Stage Control“. You need a XY Stage and a Stage for the Z-axis.



It is possible to write own plug-in in Java or create own GUIs with Netbean.