20210508

Notes on multipoint Z series.

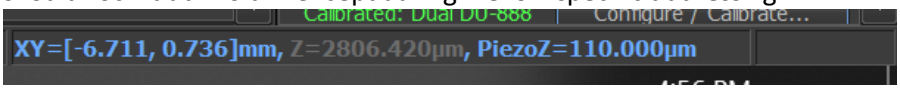
To set up multiple positions (XY) with different Z positions, use the Include Z checkbox in the ND Acquisition window. Use PFS is optional.

(For objects close to the coverslip, such as cultured cells, where asymmetric Z is used to go in the up direction only, PFS may be used instead of Z.)

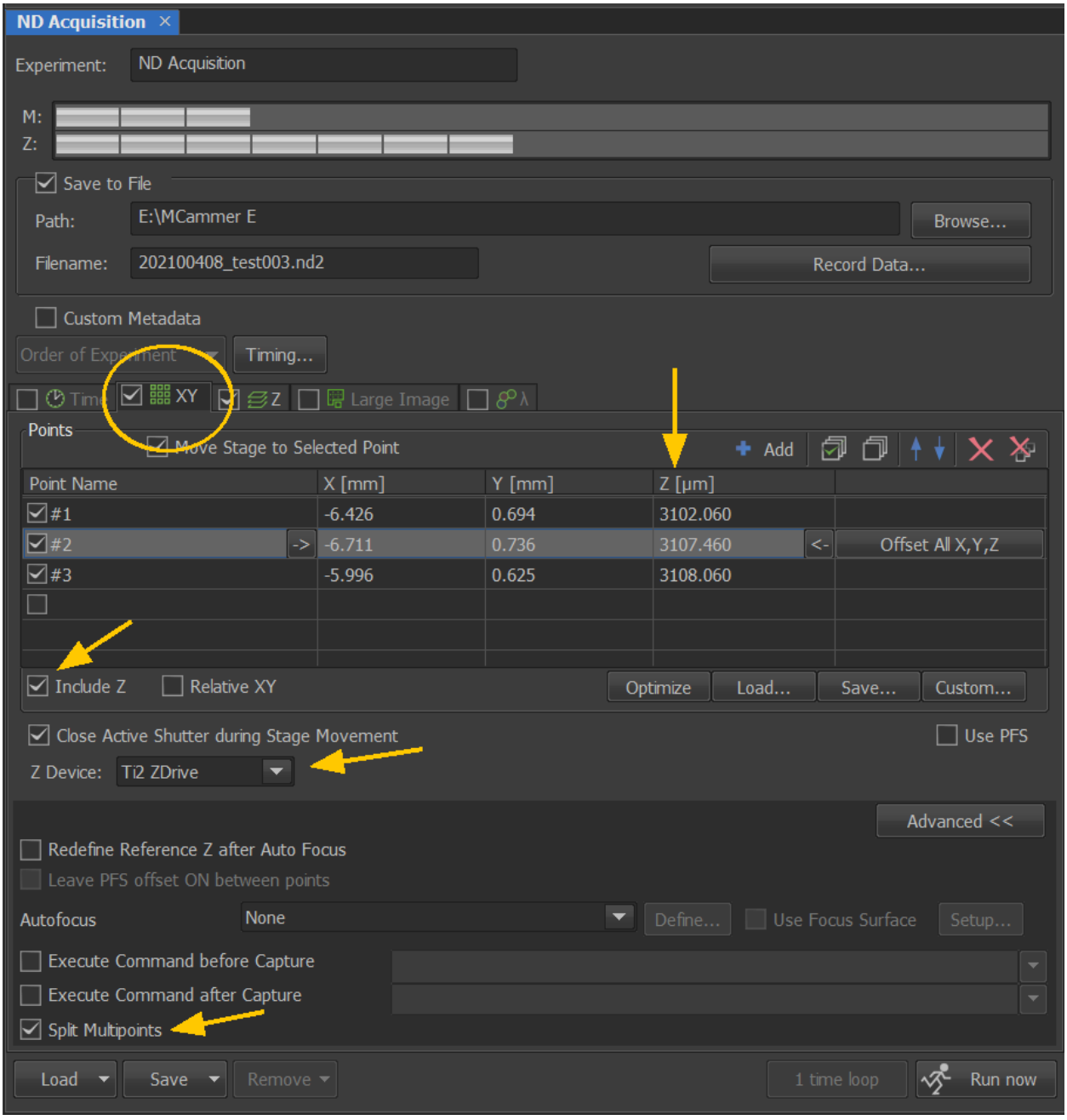
Z Device in XY tab always set for Ti2 Drive. This sets the Z position absolutely using the motor inside the microscope stand.

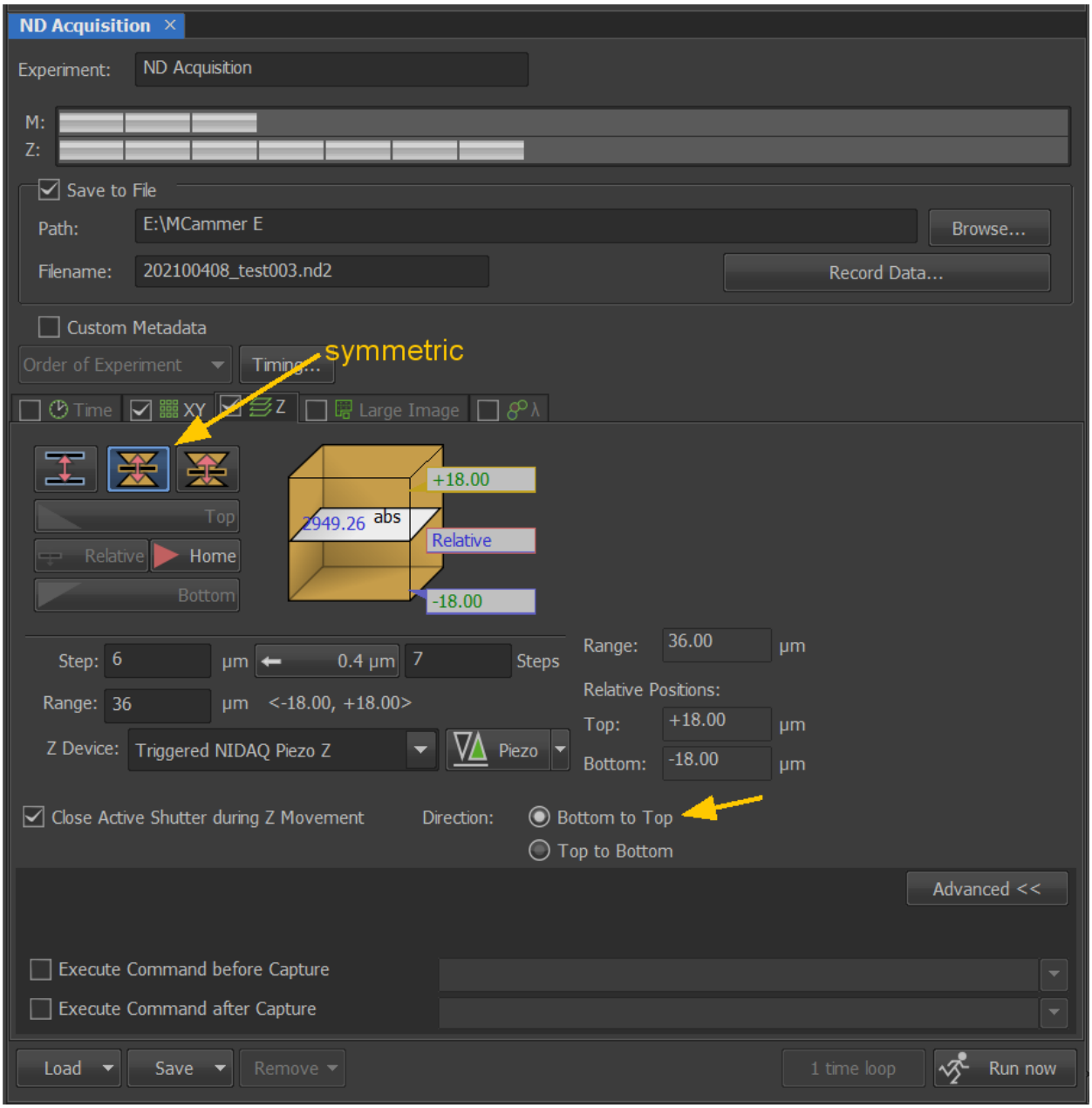
In the Z window, you must use either the symmetric or asymmetric mode defined by range. The Relative button **should be grayed out** and **DO NOT click the Home button**.
The reference Z position is defined in the XY tab.
Regardless whether you use the Ti2 Drive, NIDAQ Piezo Z, or Triggered NIDAQ Piezo Z, these operate relative to the absolute Z position set in the XY tab.

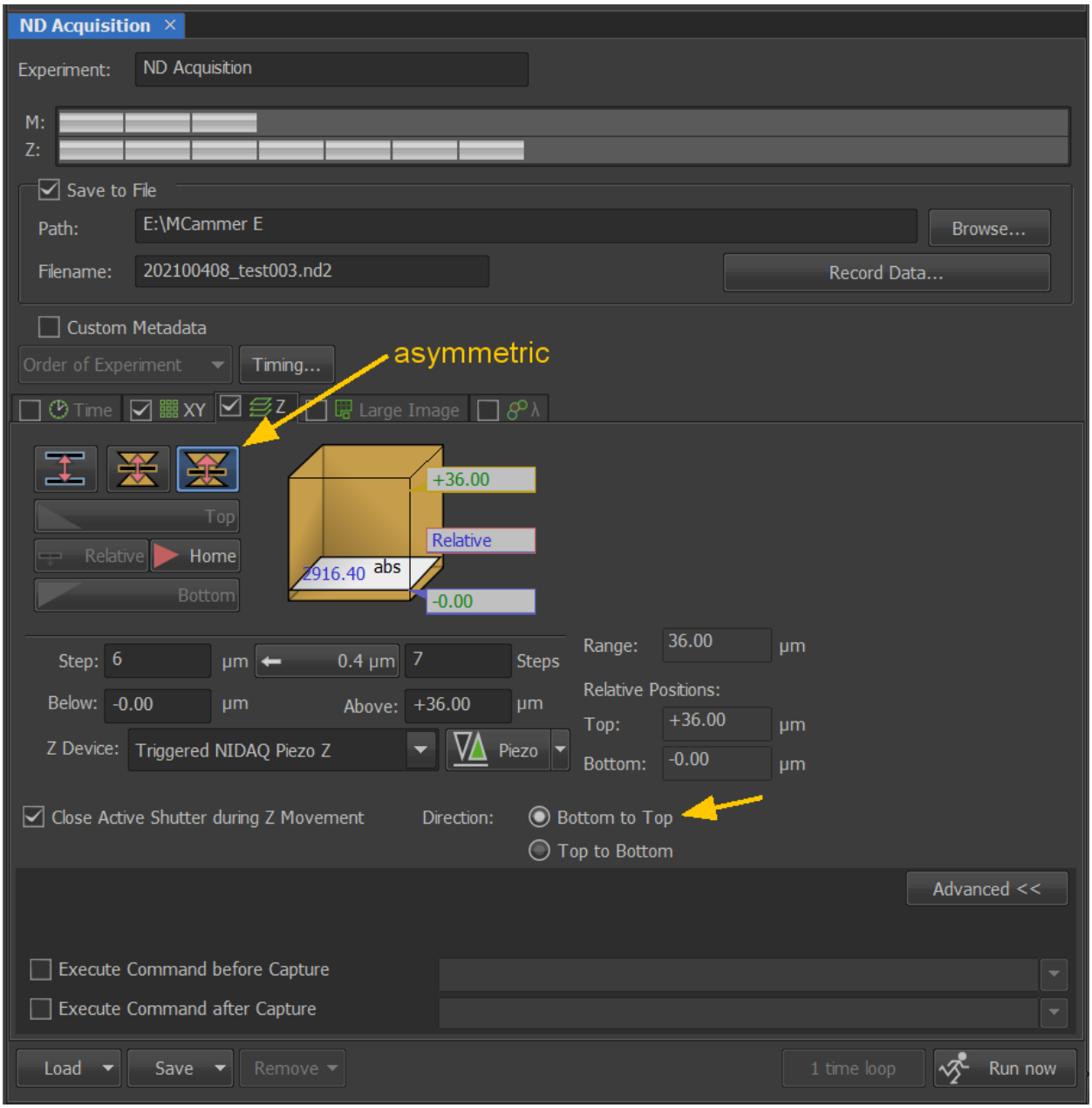
When you are setting the Z position, Piezo Z in lower right should always stay at 110 um.
Devices > Move Piezo Z to Home Position
will set to 110 um and
Devices > Keeps Z position and centers Piezo Z
should lock it at 110 um except during Piezo Z specific addressing.



Always click Split Multipoints at bottom of the Advanced menu in XY tab so that each position will be saved separately. At the end of the experiment, click No to the question about splitting multipoints as they are already saved separately on disk. Doing this 1.) allows you to access in ImageJ the data during image collection, 2.) makes smaller files, and 3.) saves time at the end of the experiment because you do not need to split the multipoints.


ND Acquisition
Experiment:
ND Acquisition
M:
Z:
Save to File
Path:
E:\MCammer E
Browse...
Filename:
202100408_test003.nd2
Record Data...
Custom Metadata
Order of Experiment
Timing...
XY
Z
Large Image
Points
Move Stage to Selected Point
Add
Point Name
X [mm]
Y [mm]
Z [µm]
#1
-6.426
0.694
3102.060
#2
->
-6.711
0.736
3107.460
<-
Offset All X,Y,Z
#3
-5.996
0.625
3108.060
Include Z
Relative XY
Optimize
Load...
Save...
Custom...
Close Active Shutter during Stage Movement
Use PFS
Z Device:
Ti2 ZDrive
Advanced <<
Redefine Reference Z after Auto Focus
Leave PFS offset ON between points
Autofocus
None
Define...
Use Focus Surface
Setup...
Execute Command before Capture
Execute Command after Capture
Split Multipoints
Load
Save
Remove
1 time loop
Run now


ND Acquisition
Experiment:
ND Acquisition
M:
Z:
Save to File
Path:
E:\MCammer E
Browse...
Filename:
202100408_test003.nd2
Record Data...
Custom Metadata
Order of Experiment
Timing...
symmetric
Time
XY
Z
Large Image
Top
Relative
Home
Bottom
+18.00
2949.26
abs
Relative
-18.00
Step:
6
µm
0.4 µm
7
Steps
Range:
36
µm
<-18.00, +18.00>
Z Device:
Triggered NIDAQ Piezo Z
Piezo
Range:
36.00
µm
Relative Positions:
Top:
+18.00
µm
Bottom:
-18.00
µm
Close Active Shutter during Z Movement
Direction:
Bottom to Top
Top to Bottom
Advanced <<
Execute Command before Capture
Execute Command after Capture
Load
Save
Remove
1 time loop
Run now


ND Acquisition
Experiment:
ND Acquisition
M:
Z:
Save to File
Path:
E:\MCammer E
Browse...
Filename:
202100408_test003.nd2
Record Data...
Custom Metadata
Order of Experiment
Timing...
asymmetric
Time
XY
Z
Large Image
Top
Relative
Home
Bottom
+36.00
Relative
2916.40
abs
-0.00
Step:
6
µm
0.4 µm
7
Steps
Below:
-0.00
µm
Above:
+36.00
µm
Z Device:
Triggered NIDAQ Piezo Z
Piezo
Range:
36.00
µm
Relative Positions:
Top:
+36.00
µm
Bottom:
-0.00
µm
Close Active Shutter during Z Movement
Direction:
Bottom to Top
Top to Bottom
Advanced <<
Execute Command before Capture
Execute Command after Capture
Load
Save
Remove
1 time loop
Run now