



silx view

27th May 2025 European HUG: HDF5 Viewer Roundtable

Thomas VINCENT, ESRF

silx view: HDF5 browser & viewer supporting the NeXus convention

Supports:

- Compressed HDF5 datasets thanks to hdf5plugin
- Other image file formats: .tiff,... .npy
- HDF5 REST API thanks to h5pyd

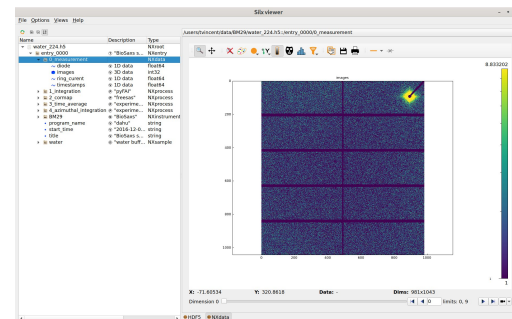
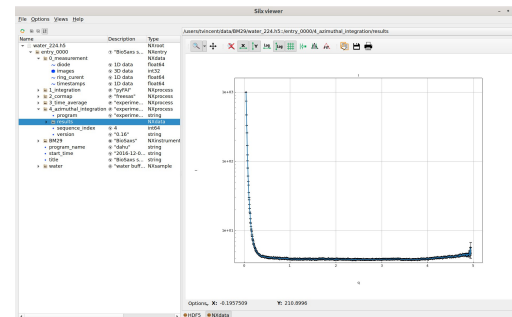
Python package based on:

Qt5/6, h5py/hdf5plugin, matplotlib, OpenGL

<https://github.com/silx-kit/silx>

License: MIT

~10 years



Installation:

Python:

- pip install silx[full]
- conda install -c conda-forge silx

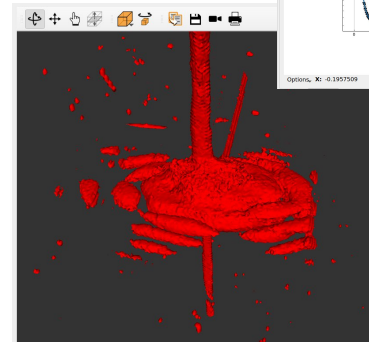
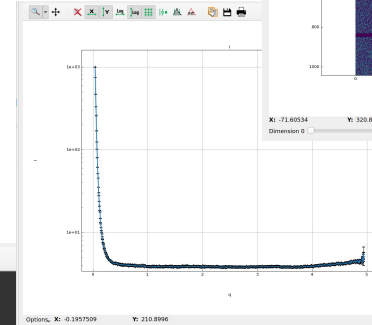
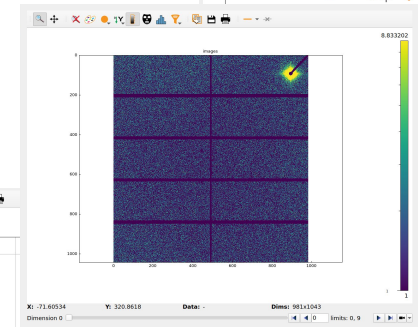
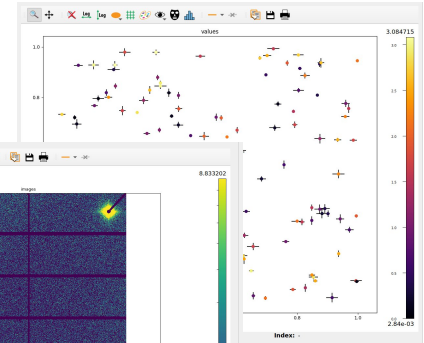
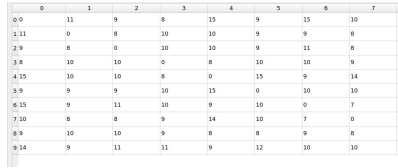
Other:

- Linux package: Debian & Ubuntu
- Windows installer
- macOS application on it's way

Start it: `silx view [files ...]`

FEATURES: VIEWS

- Supported data:
 - nD datasets
 - Complex numbers
- Available views:
 - Curves
 - Images
 - Scatter plots (NXdata)
 - 3D volume viewer
 - Matrix view
 - HDF5 inspection



Name	Description	Type	Shape	Link
data210		Nxroost		
entry_0000	"BioSax.s"	Nxroost		
0.0 measurement		Nxdata		
10 data		float32	10	
images		int32	10 x 1043 x 981	
img_current		float32		
time_stamp		int32		
"pyTf"		Nxprocess		
1.1 integration		Nxprocess		
2.0 correlation		Nxprocess		
date	"2018-10-2"	string	scalar	
program	"freesax"	string	scalar	
results		Nxdata		
10 data		float32	10 x 10	
20 data		float32	10	
version		int64	scalar	
"0.1 or"		Nxprocess	scalar	
"experimente..."		Nxprocess		
4.0 final_integration		Nxprocess		
"experimente..."		string	scalar	
results		Nxdata		
"experimente..."		Nxprocess	scalar	

Base name	images		
Name	/entry_0000/0_measurement/images		
Local	/users/vincent/data/BM29/water_224.h5:/entry_0000/0_measurement/images		
Physical	/users/vincent/data/BM29/water_224.h5:/entry_0000/0_measurement/images		
Data info			
HDF5 type	INTEGER		
dtype	Native int32		
shape	10 × 1043 × 981 = 10231830		
chunks	1 × 1043 × 981 = 1023183		
Compression info			
Position	HDF5 ID	Name	Options
0	32008	->masu/bitshuffle"0 3 4 0 2	
Attributes			
interpretation	"image"		

FEATURES: NEXUS SUPPORT

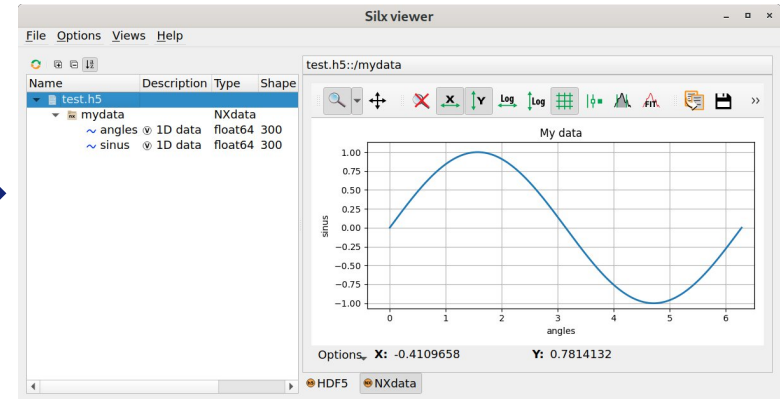
Convention for hierarchical nD-data structure such as Hdf5:

« NeXus is a common data format for neutron, x-ray, and muon science »

NXdata « contains plottable data and their associated axis coordinates »:

mydata/

```
@NX_class="NXdata"  
@axes=["angles"]  
@signal="sinus"  
@title="My data"  
angles: 1D dataset  
sinus: 1D dataset
```

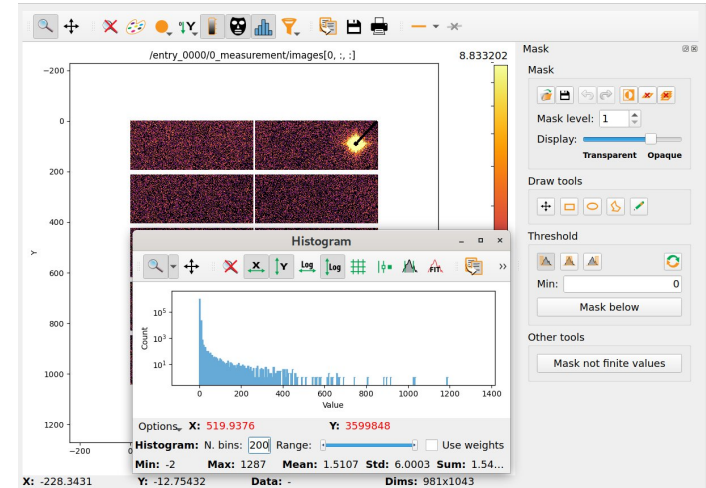


Attributes	
NX_class	"NXdata"
axes	["angles"]
signal	"sinus"
title	"My data"

FEATURES: TOOLS

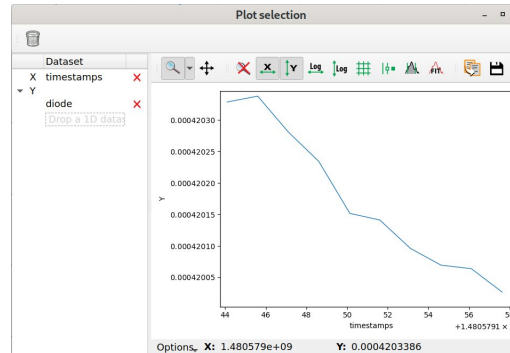
Embedded tools:

- Curves:
 - Region of interest
 - Fit
- Image/Scatter:
 - Mask
 - Profile
 - Histogram



Advanced: Craft your own NXdata

Name	Dataset	Type	Shape
NXData #1			
Signal	/entry_0000/0_me...	float64 10	
Axis 1	/entry_0000/0_me...	float64 10	



Priorities

- Test with Qt6
- Refresh NeXus support
- Improve support of large datasets
- General improvements:
 - Ensure consistency across views: tool availability and access
 - Search/Filter in the browser