tomo_nuevo

September 17, 2019

1 Test New Tomography Experiment Control

Test the OOP-based Tomography experiment control

[1]:
```
import numpy as np
import matplotlib
import bluesky
import ophyd
import apstools
import databroker

from datetime import datetime
from seisidd.experiment import Tomography
```

[2]:
```
# instantiate the experiment handle

testexp = Tomography()
```

```
/home/beams/S6BM/opt/miniconda3/envs/bluesky_py37_tornado6/lib/python3.7/site-
packages/epics/pv.py:110: UserWarning: The `context` kwarg for epics.get_pv() is
deprecated. New PVs will _not_ be created in the requested context.
  'The `context` kwarg for epics.get_pv() is deprecated. New PVs '
```

[3]:
```
testexp.mode = 'dryrun'
```

[4]:
```
# expose internal RunEngine
RE = testexp.RE

# setup the Metadata as before
RE.md['beamline_id'] = 'APS 6-BM-A'
RE.md['versions'] = {}
RE.md['versions']['apstools'] = apstools.__version__
RE.md['versions']['bluesky'] = bluesky.__version__
RE.md['versions']['databroker'] = databroker.__version__
RE.md['versions']['matplotlib'] = matplotlib.__version__
RE.md['versions']['numpy'] = np.__version__
RE.md['versions']['ophyd'] = ophyd.__version__
RE.md['SESSION_STARTED'] = datetime.isoformat(datetime.now(), " ")
```

[5]:
```
scan_cfg = 'seisidd/config/tomo_scan_template.yml'
```

[6]:
```
# summarize plan
testexp.dryrun(scan_cfg)
```

```
================================== Open Run ==================================
A_shutter -> open
det_tiff1_file_path -> /dev/shm/tmp/
det_tiff1_file_name -> ttt
det_tiff1_file_write_mode -> 2
det_tiff1_num_capture -> 26
det_tiff1_file_template -> %s%s_%06d.hdf
det_hdf1_file_path -> /dev/shm/tmp/
det_hdf1_file_name -> ttt
det_hdf1_file_write_mode -> 2
det_hdf1_num_capture -> 26
det_hdf1_file_template -> %s%s_%06d.hdf
det_tiff1_enable -> 0
det_hdf1_enable -> 1
det_hdf1_capture -> 1
det_cam_frame_type -> 0
tomostage_ksamX -> -1.0
tomostage_ksamZ -> 0.0
det_hdf1_nd_array_port -> PROC1
det_tiff1_nd_array_port -> PROC1
det_proc1_enable -> 1
det_proc1_reset_filter -> 1
det_proc1_num_filter -> 1
det_cam_trigger_mode -> Internal
det_cam_image_mode -> Multiple
det_cam_num_images -> 5
  Read ['det']
tomostage_ksamX -> 0.0
tomostage_ksamZ -> 0.0
det_cam_frame_type -> 1
det_hdf1_nd_array_port -> PROC1
det_tiff1_nd_array_port -> PROC1
det_proc1_enable -> 1
det_proc1_reset_filter -> 1
det_proc1_num_filter -> 1
tomostage_preci -> 0.0
  Read ['det']
tomostage_preci -> 0.5
  Read ['det']
tomostage_preci -> 1.0
  Read ['det']
tomostage_preci -> 1.5
  Read ['det']
```

```
tomostage_preci -> 2.0
  Read ['det']
tomostage_preci -> 2.5
  Read ['det']
tomostage_preci -> 3.0
  Read ['det']
tomostage_preci -> 3.5
  Read ['det']
tomostage_preci -> 4.0
  Read ['det']
tomostage_preci -> 4.5
  Read ['det']
tomostage_preci -> 5.0
  Read ['det']
det_cam_frame_type -> 2
tomostage_ksamX -> -0.9961946980917455
tomostage_ksamZ -> 0.08715574274765817
det_hdf1_nd_array_port -> PROC1
det_tiff1_nd_array_port -> PROC1
det_proc1_enable -> 1
det_proc1_reset_filter -> 1
det_proc1_num_filter -> 1
det_cam_trigger_mode -> Internal
det_cam_image_mode -> Multiple
det_cam_num_images -> 5
  Read ['det']
tomostage_ksamX -> 0.0
tomostage_ksamZ -> 0.0
det_cam_frame_type -> 3
A_shutter -> close
det_hdf1_nd_array_port -> PROC1
det_tiff1_nd_array_port -> PROC1
det_proc1_enable -> 1
det_proc1_reset_filter -> 1
det_proc1_num_filter -> 1
det_cam_trigger_mode -> Internal
det_cam_image_mode -> Multiple
det_cam_num_images -> 5
  Read ['det']
================================== Close Run ===================================
```

[8]:
```
testexp.run(scan_cfg)
```

```
Transient Scan ID: 2     Time: 2019-08-22 12:47:10
Persistent Unique Scan ID: 'e4c9c153-1090-47f1-bf23-fc246ac11792'
New stream: 'primary'
+-----------+------------+
```

```
|   seq_num |       time |
+-----------+------------+
|         1 | 12:47:16.2 |
|         2 | 12:47:22.3 |
|         3 | 12:47:25.4 |
|         4 | 12:47:28.4 |
|         5 | 12:47:31.5 |
|         6 | 12:47:34.6 |
|         7 | 12:47:37.6 |
|         8 | 12:47:40.7 |
|         9 | 12:47:43.7 |
|        10 | 12:47:46.8 |
|        11 | 12:47:49.9 |
|        12 | 12:47:52.9 |
|        13 | 12:47:57.5 |
|        14 | 12:48:02.1 |
+-----------+------------+
generator tomo_scan ['e4c9c153'] (scan num: 2)
```

[8]:
```
('e4c9c153-1090-47f1-bf23-fc246ac11792',)
```

[ ]:
```

```