

Sardana Archiving

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- Logs parsing
- Attributes archiving

Logs parsing (FluentBit)



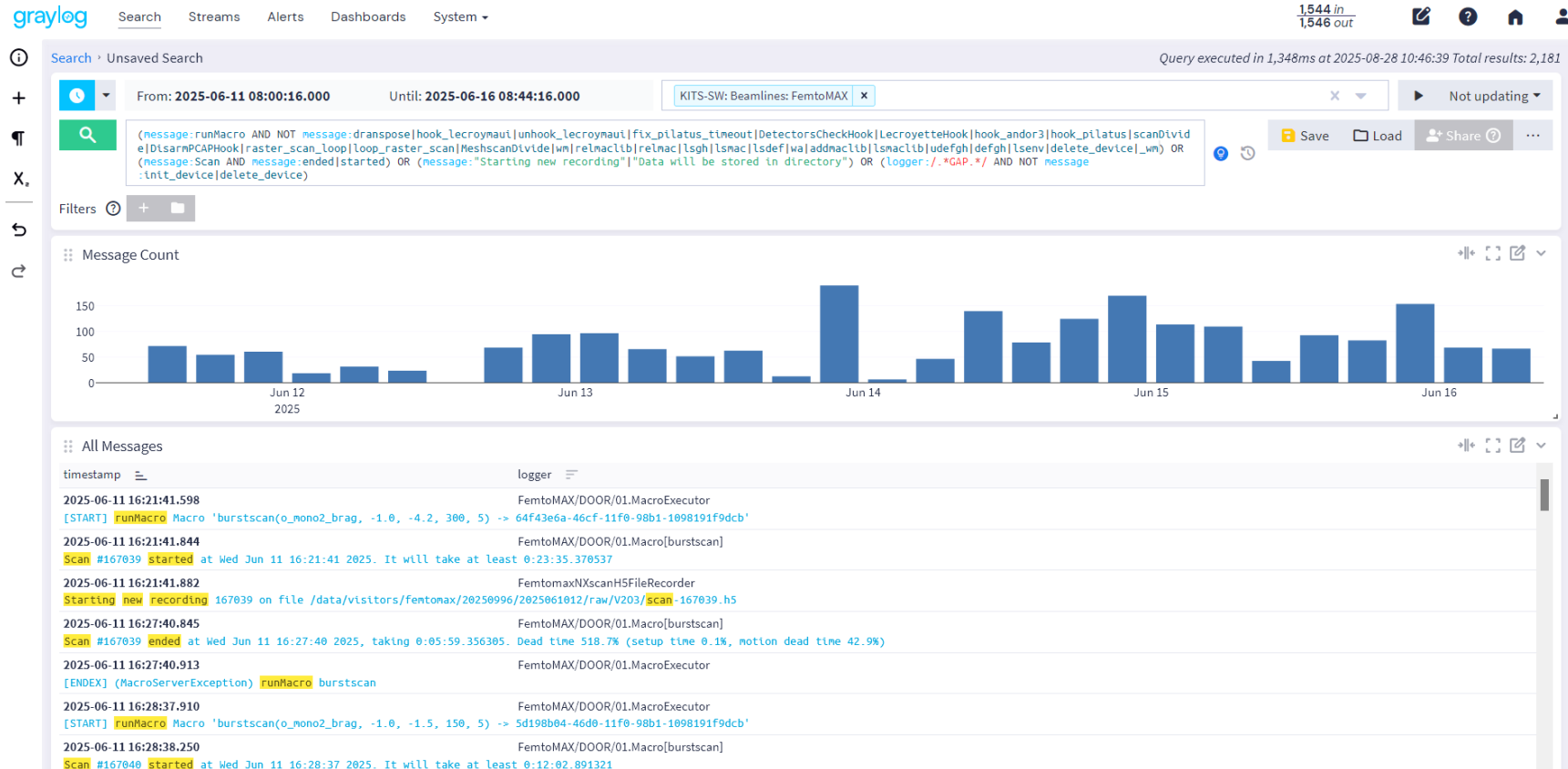
```
[INPUT]
  name          tail
  path          /tmp/tango*/Pool/*/*.txt
  tag           Pool
  multiline     on
  parser_firstline sardana_default
  offset_key    offset
  path_key      path
  db            {{ fluent_bit_db_path }}/pool_logs.db
  read_from_head True
```

```
[INPUT]
  name          tail
  path          /tmp/tango*/MacroServer/*/*.txt
  tag           MacroServer
  multiline     on
  parser_firstline sardana_default
  offset_key    offset
  path_key      path
  db            {{ fluent_bit_db_path }}/macroserver_logs.db
  read_from_head True
```

```
[OUTPUT]
  name          gelf
  match_regex   Pool|MacroServer
  host          {{ fluent_bit_host }}
  port          {{ fluent_bit_port }}
  mode          tcp
  gelf_short_message_key message
  gelf_Host_Key source
```

```
[PARSER]
  name          sardana_default
  format        regex
  regex         /^(?<thread>[\\S]+)\\s+(?<loglevel>[A-Z]+)\\s+(?<time>\\S+\\s\\S+)\\s+(?<logger>\\S+):\\s+(?<message>[\\s\\S]+)/
  time_key      time
  time_format   %Y-%m-%d %H:%M:%S,%L
```

Logs storage (Graylog)



```
(message:runMacro AND NOT
message:dranspose|hook_lecroymaui|unhook_lecroymaui|fix_pilatus_timeout|DetectorsCheckHook|LecroyetteHook|hook_andor3|hook
_pilatus|scanDivide|DisarmPCAPHook|raster_scan_loop|loop_raster_scan|MeshscanDivide|wm|relmaclib|relmac|lsgh|lsmac|lsdef|w
a|addmaclib|lsmaclib|udefgh|defgh|lsenv|delete_device|_wm) OR (message:Scan AND message:ended|started) OR
(message:"Starting new recording"|"Data will be stored in directory") OR (logger:/*GAP.* AND NOT
message:init_device|delete_device)
```

User operation

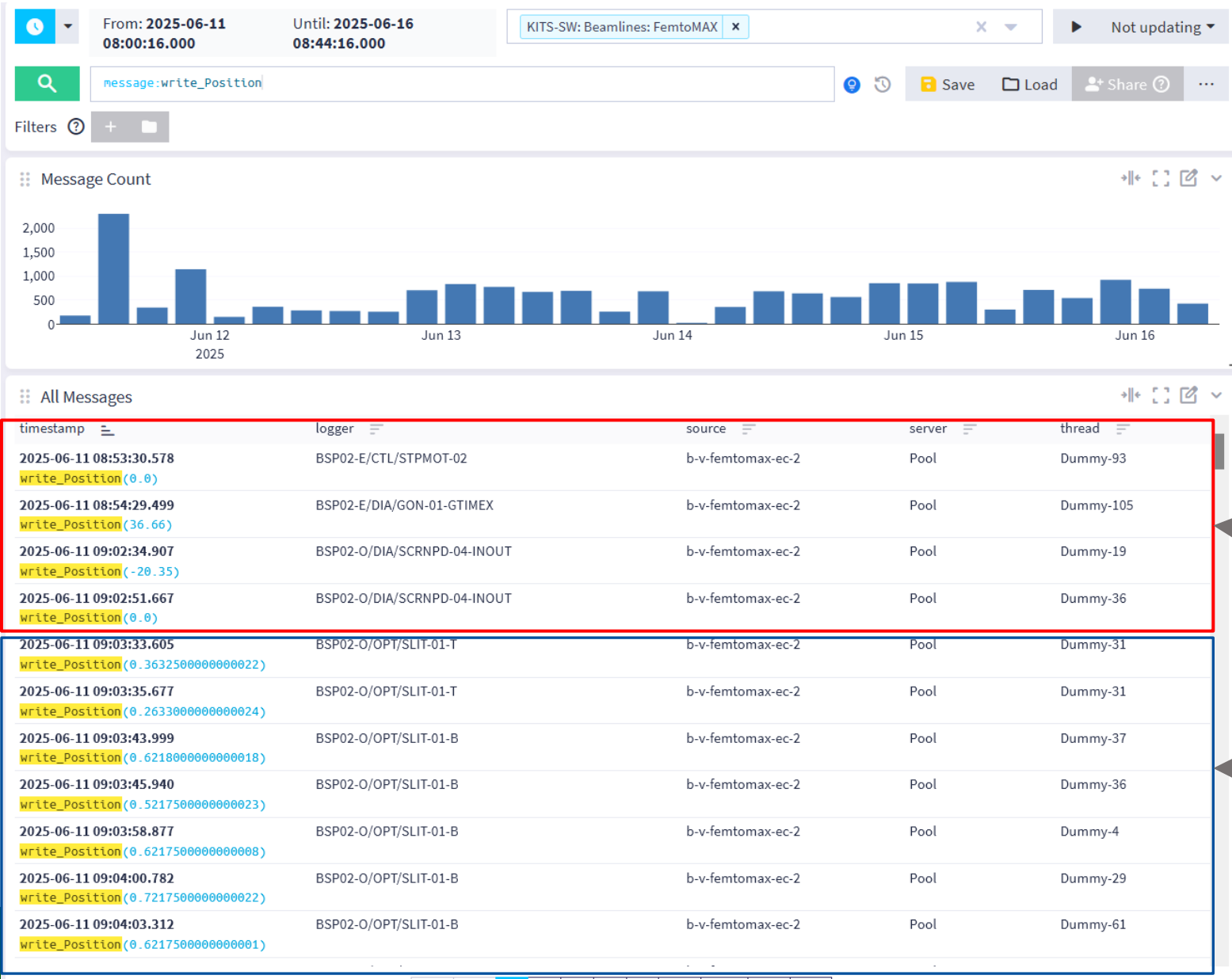
timestamp	logger
2025-06-11 16:51:17.114	FemtoMAX/DOOR/01.Macro[burstscan]
Scan #167043 started at Wed Jun 11 16:51:16 2025. It will take at least 0:23:30.631066	
2025-06-11 16:51:17.138	FemtomaxNXscanH5FileRecorder
Starting new recording 167043 on file /data/visitors/femtomax/20250996/2025061012/raw/V203/scan-167043.h5	
2025-06-11 16:57:06.448	FemtoMAX/DOOR/01.Macro[burstscan]
Scan #167043 ended at Wed Jun 11 16:57:06 2025, taking 0:05:50.042197. Dead time 529.7% (setup time 0.2%, motion dead time 49.4%)	
2025-06-11 16:57:06.519	FemtoMAX/DOOR/01.MacroExecutor
[ENDEX] (MacroServerException) runMacro burstscan	
2025-06-11 17:02:15.463	I-SP02/ID/IDIVU-01-GAP
write_Position(4.0)	
2025-06-11 17:02:18.752	I-SP02/ID/IDIVU-02-GAP
write_Position(4.0)	
2025-06-11 17:05:13.974	I-SP02/ID/IDIVU-01-GAP
write_Position(4.1)	
2025-06-11 17:05:18.661	I-SP02/ID/IDIVU-02-GAP
write_Position(4.13)	
2025-06-11 17:06:24.457	FemtoMAX/DOOR/01.MacroExecutor
[START] runMacro Macro 'burstscan(o_mono2_brag, -1.0, -2.0, 100, 5) -> a41173b4-46d5-11f0-98b1-1098191f9dcb'	
2025-06-11 17:06:24.688	FemtoMAX/DOOR/01.Macro[burstscan]
Scan #167044 started at Wed Jun 11 17:06:24 2025. It will take at least 0:07:53.631902	
2025-06-11 17:06:24.717	FemtomaxNXscanH5FileRecorder
Starting new recording 167044 on file /data/visitors/femtomax/20250996/2025061012/raw/V203/scan-167044.h5	

Motor groups in logs

timestamp	logger	server	thread
2025-05-23 00:24:34.440 write_Position([-4.50e-12 3.38e+02])	mg/pool_femtomax/_mg_ms_21077_1	Pool	Dummy-25
2025-05-23 00:24:41.323 write_Position([-2.50e-12 3.38e+02])	mg/pool_femtomax/_mg_ms_21077_1	Pool	Dummy-33
2025-05-23 00:24:48.497 write_Position([-5.00e-13 3.38e+02])	mg/pool_femtomax/_mg_ms_21077_1	Pool	Dummy-24
2025-05-23 00:24:55.138 write_Position([-6.50000000e-12 3.38033333e+02])	mg/pool_femtomax/_mg_ms_21077_1	Pool	Dummy-7
2025-05-23 00:36:07.543 write_Position([3.38e+02 -6.50e-12])	mg/pool_femtomax/_mg_ms_21077_2	Pool	Dummy-7
2025-05-23 00:36:14.309 write_Position([3.38033333e+02 -6.50000000e-12])	mg/pool_femtomax/_mg_ms_21077_2	Pool	Dummy-22
2025-05-23 00:36:21.233 write_Position([3.38066667e+02 -6.50000000e-12])	mg/pool_femtomax/_mg_ms_21077_2	Pool	Dummy-6
2025-05-23 00:36:28.187 write_Position([3.381e+02 -6.500e-12])	mg/pool_femtomax/_mg_ms_21077_2	Pool	Dummy-6
2025-05-23 00:36:34.936 write_Position([3.38133333e+02 -6.50000000e-12])	mg/pool_femtomax/_mg_ms_21077_2	Pool	Dummy-19
2025-05-23 00:36:41.506 write_Position([3.38166667e+02 -6.50000000e-12])	mg/pool_femtomax/_mg_ms_21077_2	Pool	Dummy-14
2025-05-23 00:36:48.130 write_Position([3.382e+02 -6.500e-12])	mg/pool_femtomax/_mg_ms_21077_2	Pool	Dummy-27

Same motors?

Manual move vs scan



Manual move?

Scan?

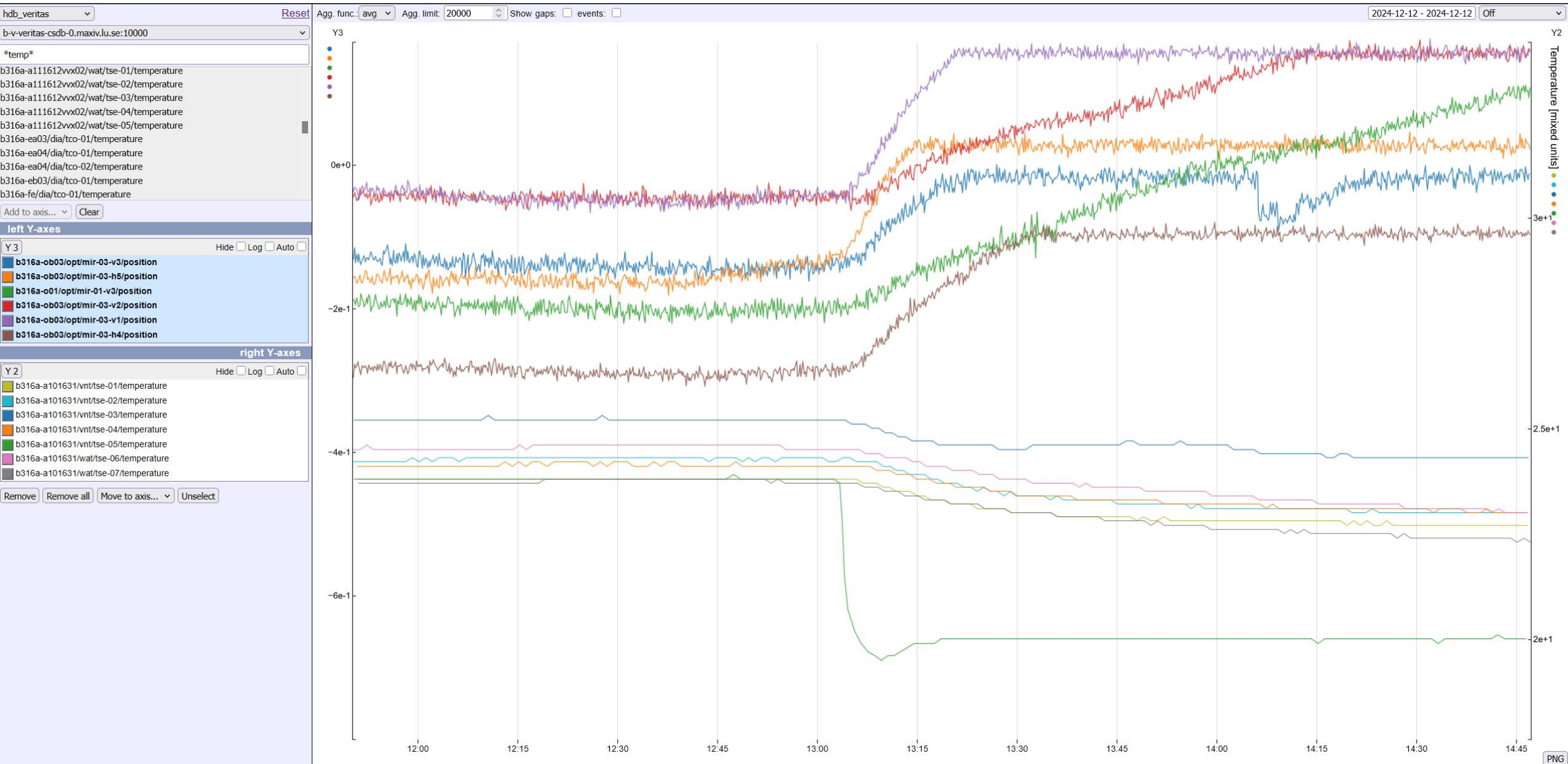
graylog

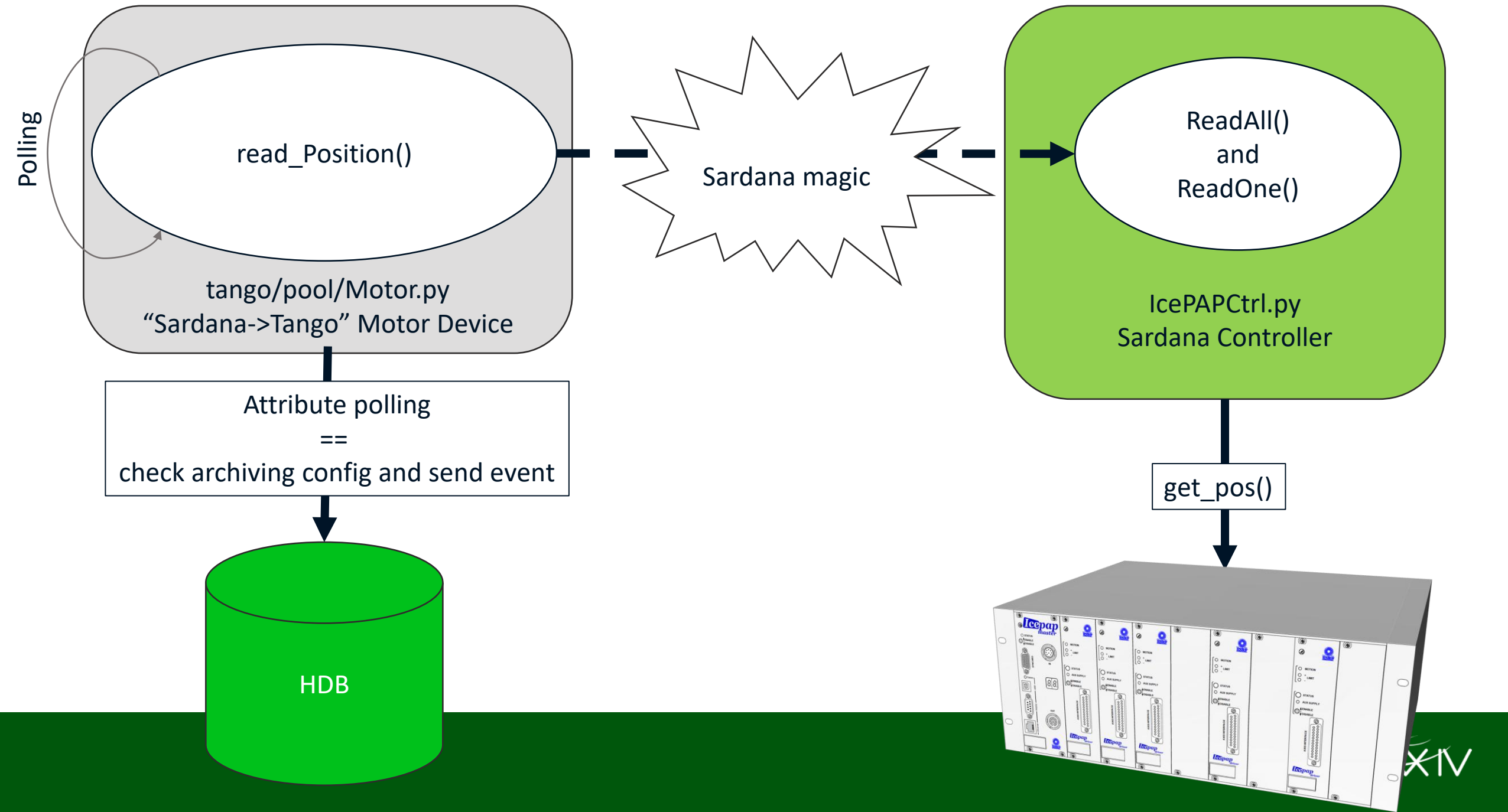
Filters



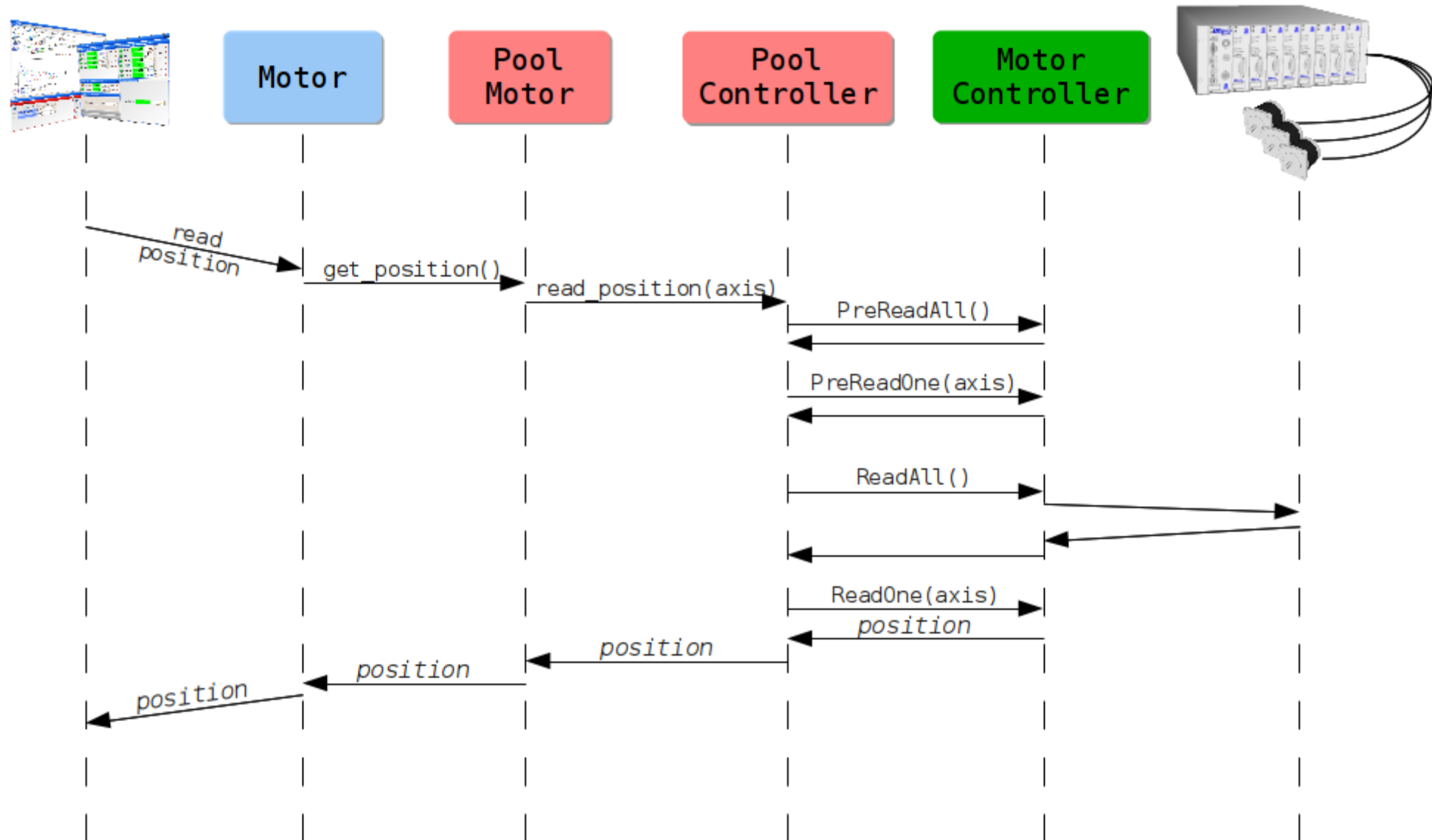
```
timestamp logger server thread
self._fire_event(event_type, event_value, listeners=listeners)
File "/opt/conda/envs/sardana/lib/python3.11/site-packages/sardana/sardanaevent.py", line 135, in _fire_event
    real_listener(self, event_type, event_value)
File "/opt/conda/envs/sardana/lib/python3.11/site-packages/sardana/tango/pool/IORRegister.py", line 132, in on_ior_changed
    self._on_ior_changed(event_source, event_type, event_value)
File "/opt/conda/envs/sardana/lib/python3.11/site-packages/sardana/tango/pool/IORRegister.py", line 183, in _on_ior_changed
    self.set_attribute(attr, value=value, w_value=w_value,
File "/opt/conda/envs/sardana/lib/python3.11/site-packages/sardana/tango/core/SardanaDevice.py", line 328, in set_attribute
    th_pool.add(set_attr, None, attr, value=value, w_value=w_value,
Traceback (most recent call last):
File "/opt/conda/envs/sardana/lib/python3.11/site-packages/taurus/core/util/threadpool.py", line 146, in run
    cmd(*args, **kw)
File "/opt/conda/envs/sardana/lib/python3.11/site-packages/sardana/tango/core/SardanaDevice.py", line 340, in set_attribute_push
    return self._set_attribute_push(attr, value=value,
            ^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^^
File "/opt/conda/envs/sardana/lib/python3.11/site-packages/sardana/tango/core/SardanaDevice.py", line 420, in _set_attribute_push
    with AutoTangoMonitor(self):
File "/opt/conda/envs/sardana/lib/python3.11/site-packages/tango/auto_monitor.py", line 16, in __AutoTangoMonitor__enter__
    self._acquire()
PyTango.DevFailed: DevFailed[
DevError[
    desc = Thread 1739764 is not able to acquire serialization monitor "BSP02-0/OPT/MONO-01-LAT-IOR", it is currently held by thread 1736677.
    origin = void Tango::TangoMonitor::get_monitor() at (/home/conda/feedstock_root/build_artifacts/cpptango_1748873176244/work/src/include/tango/server/tango_monitor.h:174)
    reason = API_CommandTimedOut
    severity = ERR]
]
```


Why positions archiving is nice to have

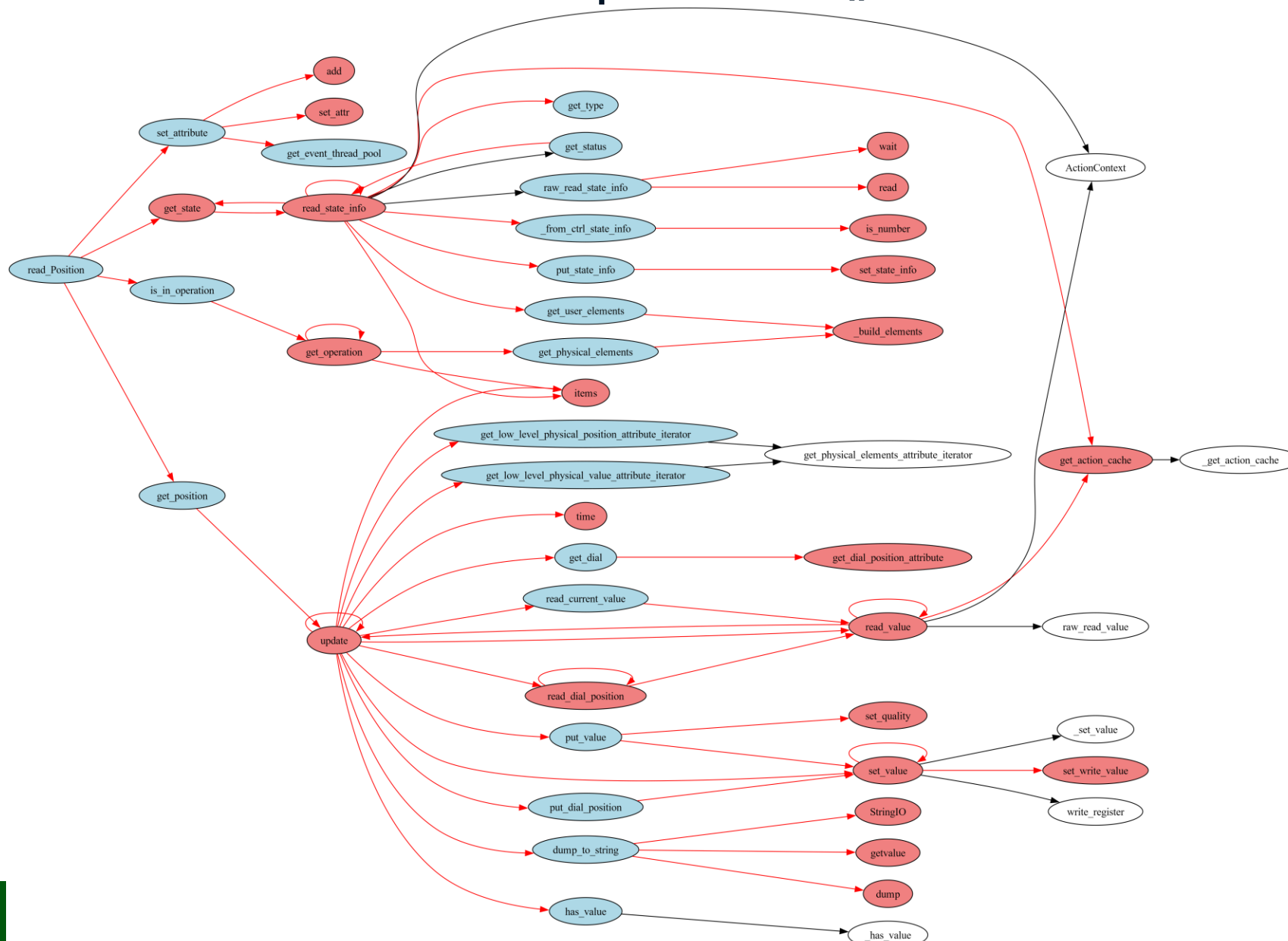




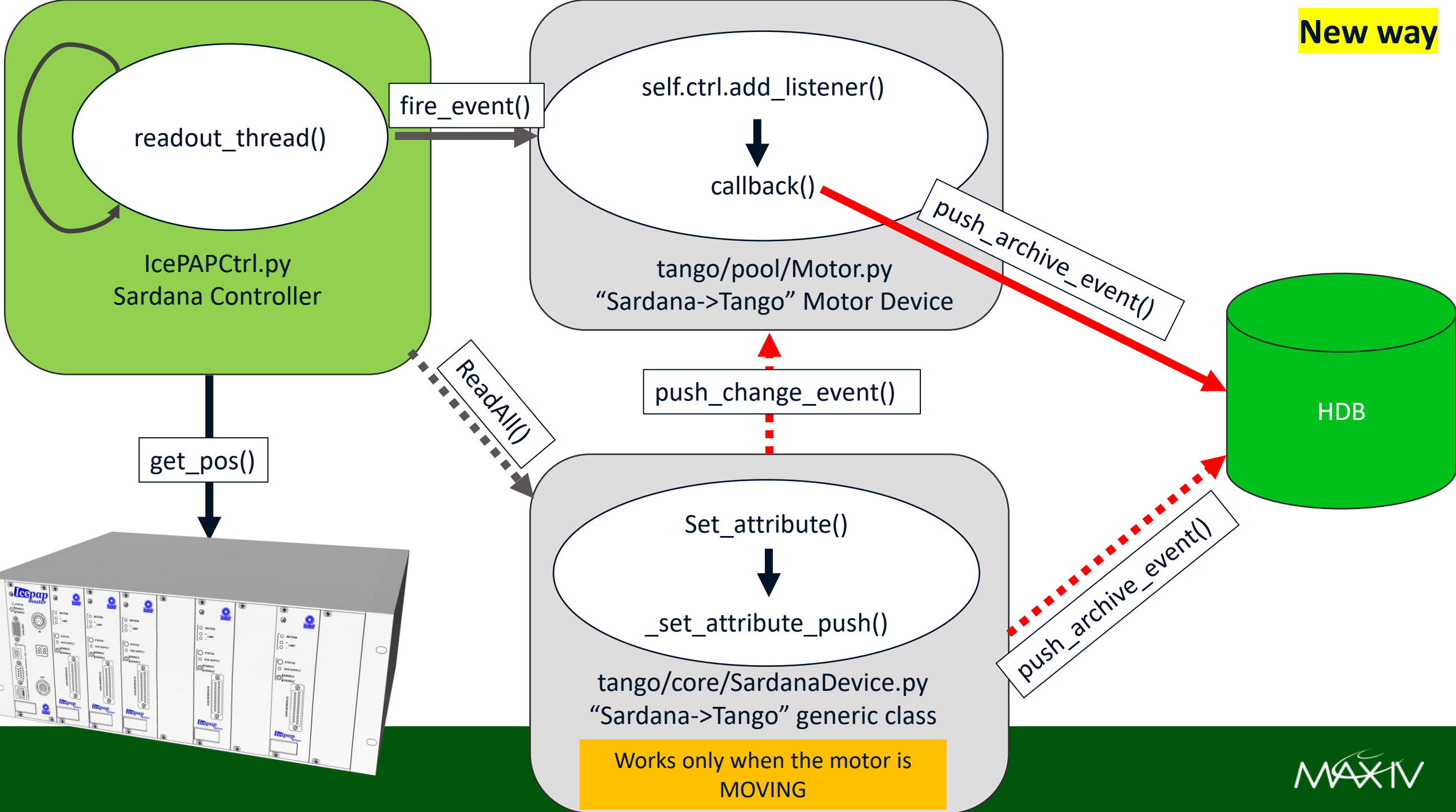
Read_position()



Read_position()



Not 100% correct, but close to what's actually happening



What we need to do

1. Add “push_archive_events” when the motor is in MOVING state
2. Add readout to MotorController, e.g. IcePAP, and send events to Motor class
3. Add a listener and a callback to the Motor class to expect events from the MotorController and “push_archive_events”. Enable “push_events_by_code”

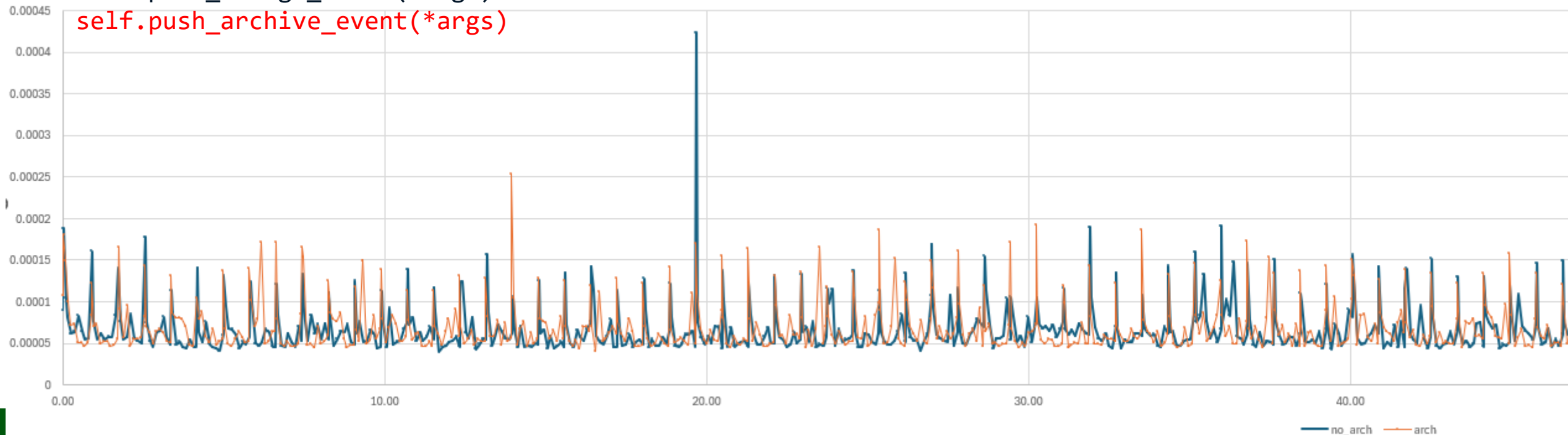
But keep in mind:

- How to query dozens of axes? Do it in batches, multiple threads, etc.?
- Do we need to stop readout during a scan?
- GIL?

Push events when motor is in MOVING state

```
def _set_attribute_push in SardanaDevice.py
```

```
if fire_event:
    if data_type == ArgType.DevEncoded:
        fmt, data = value
        args = attr_name, fmt, data, timestamp, quality
    else:
        args = attr_name, value, timestamp, quality
    self.push_change_event(*args)
    self.push_archive_event(*args)
```



Read positions in IcePAP controller (simplified example)

```
ctrl_attributes = {...  
    "Positions": {  
        Type: str,  
        Description: 'Poll this attribute to read positions for archiving',  
        Access: DataAccess.ReadOnly},  
}
```

```
def getPositions(self):  
    positions = {}  
    try:  
        axes = self._getPoolController().get_element_axis()  
        ans = self.ipap.get_fpos(  
            axes,  
            register="AXIS"  
        )  
        for axis, position in zip(axes, ans):  
            self.attributes[axis]['position_value'] = float(position)  
            calc_pos = float(position) / self.attributes[axis]["step_per_unit"]  
            self._getPoolController().fire_event(EventType(f"{axis}"),  
                                                  SardanaValue(calc_pos))  
            positions[axis] = calc_pos  
    except Exception as e:  
        print(e)  
    return str(positions)
```


Add listener and callback to Motor.py

```
def init_device(self):
    .....
    self.ctrl.add_listener(self.ctrl_event)

def ctrl_event(self, ev_src, ev_type, ev_val):
    try:
        if str(ev_type.name) == str(self.Axis):
            quality = AttrQuality.ATTR_VALID
            timestamp = ev_val.timestamp
            value = ev_val.value
            attr_name = "position"
            args = attr_name, value, timestamp, quality
            self.push_archive_event(*args)
    except Exception as e:
        print(e)
```

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