

Tango Polling at ALBA Synchrotron

- We do not use Archive event, **only Change** (archived using SubscribeChangeAsFallback property).
 - Reasons are historical (Archive event not working well on Tango7/8)
 - And practical, Sardana and others push Change events for free
 - We use PeriodicArchiver and Taurus polling for periodic data
- Devices with < 10 devices typically use Tango internal polling (1 thread per device), unless they have problems due to:
 - Any read time above period/N attributes
 - Irregular HW response times (aka long commands)
 - $N \text{ attributes} * \text{read time} > \text{refresh period wanted}$
 - Any of these cases easily leads to "OutOfSync" or Timeout exceptions.

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- To solve these problems, we have a dedicated thread to read the hardware & updating a cache/buffer/dictionary that it is read then by the internal polling.
 - It adds some overhead but solves the aforementioned problems.
 - **But in python there is only one real thread!** That seems to lead to "Unable to acquire serialization" Exceptions
- This is why on any device of > 20-30 attributes we use `push_change_event` from code instead.
 - No internal polling, just internal HW thread (with `ensure_omnithread` decorator) and push from there
 - Still having issues sometimes (receiving/pushing from outside Tango methods have segfault risks).
 - When having problems (or >1K events/second/server, events are serialized in a queue and "streamed" at a fix rate with a polled command keeping original timestamps.