Online Calibration Tools Documentation

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CHAPTER 1

Usage

(Re)starting a calibration pipeline is not a light-weight task: tens of devices are involved for the fast 2D detectors, tens of Gigabytes of calibration constants are loaded, and GPU memories and contexts are freed and inactivated. Thus, if you are not doing this as a part of a routine shift start-up procedure, **please follow these troubleshooting guidelines first:**

1.1 Online Preview not Updating

This can have multiple reasons, a faulty pipeline being only one of them. If the pipeline devices are alive, i.e. no grey crosses are showing for them in the GUI, check the following first:

- DAQ-related: is the detector configured as a data source? Is the DAQ in monitoring or recording state?
- GUI-related: is the time of flight field updating? If so, the pipeline is outputting data. Close the scene containing the non-working preview and open it again. Call CAS-OCD and ask about the heath of the GUI server (especially, if updates are sluggish in general)
- Detector-related: are you sure the detector is producing data? Do you see indication on the splitter status that data is malformed or the detector is misconfigured? Use the ITDM provided RunDeck tools to verify that data is being sent via the 10G interface.

If after going through the above you still think the pipeline is the culprit, proceed.

1.2 Restarting the Calibration Pipeline

(Re)starting a calibration pipeline is a three step process:

1. you should assure that all servers are present, and that no previously instantiated devices exists. For this execute "Restart Servers" on a *RestartCalServers* device (see *The Restart Servers Module* for details). Make sure all servers have been restarted, by waiting for the device to return to the *ACTIVE* state.
2. you should re-init the calibraition devices. However, first make sure that the detector is currently **not** sending data. The DAQ however can stay in monitoring state, or even be recording with the detector not selected as

a data source. The execute "Start pipeline" from the appropriate device instance. Wait til this device is in the *ACTIVE* state again.

3. make sure to click "Update Splitters" in the calibration manager scene, to set the pulse filter range again. If a DAQ restart has happened (or your are unsure), also click "Update Aggregators". If either of the two takes more than a few seconds something is still not in good shape. In case of the aggregators, call check the DAQ, in case of the splitters, repeat from step 1.

Note: On certain Karabo GUI versions, a restart will result in the previews not updating anymore. You can verify the pipeline is outputting data, by checking that the time of flight parameter is changing. In this case, close the preview scene, and reopen it. If this does not help, try closing the GUI and reopening it.

CHAPTER 2

The CalML Package

The CalML package provides utilities for (re)starting the online calibration pipelines of the LPD and AGIPD detectors.

2.1 The Restart Servers Module

class calML.restart_servers.**RestartCalServers**
A device for reliably restarting calibration servers.

This device is to be used to initiate a "blank slate" restart of the calibration pipeline.

2.2 The Base Online Correction Module

CHAPTER 3

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