Instrument control: NICOS

- developed at MLZ since 2009

- steadily rolled out to instruments (replacing various legacy systems)

- operating at 20 instruments

Basic NICOS features

- client-server system based on Python scripting

- allows execution of predefined commands as well as complex scripts provided by the user

- graphical facilities for user convenience on top of basic „console-like" interface

- flexible „setup" system to reconfigure instruments on the fly

- dry-run mode for error checking/timing

- device data logging/archival and retrieval

- low-level device drivers usually provided by another control system: TACO/Tango/Epics/CARESS
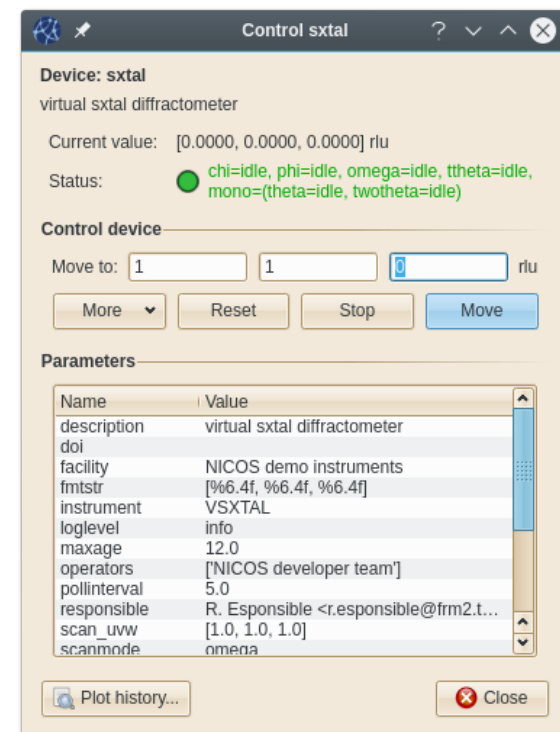
Single-crystal specifics

- development of commands/devices for traditional single-crystal diffractometers at MLZ ongoing

  - POLI: including polarization analysis, cryopad

  - RESI: with area detector

- working with „position lists" and „reflection lists"

- standard commands like „center peak", „scan HKL", „scan list", „refine matrix"

- goal: make lists available to scripting, to implement complex scripts on-the-fly for the user

POWTEX

- new RWTH/FZJ instrument POWTEX:
  - TOF powder instrument with large detector coverage
  - built in the new eastern guide hall at MLZ
- current development phase:
  - implementation of device drivers
  - preparation for possible in-situ detector tests at SNS
- full requirements for NICOS not yet clearly defined
- important areas:
  - data handling and data format (event stream as primary format not used otherwise at MLZ)
  - direct export to Mantid for online data visualization