

Progress on IBEX, the ISIS Instrument Control System

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At the ISIS Pulsed Neutron and Muon Source [1], we in the Experiment Control Group are in the process of upgrading from the LabVIEW-based [2] “SECI” instrument control system to the new “IBEX” control system [3, 4] based on EPICS [5]. At the time of writing, 15 out of 33 instruments are running on IBEX. The system utilises a number of software packages from large scale facilities across the world, which have the potential to be useful to other institutions such as FHI. This talk will outline the architecture of the new system and discuss some of the motivation behind the technology decisions taken. It will focus on a number of new features have recently been added to IBEX which were not available in the SECI system. We have added a collision detection system based on the python pyode library [6], which helps to ensure machine safety on some instruments. A script server, which allows scientists to better supervise which scripts have control over experiments, has been included based on the NICOS [7] control system. Also a major GUI upgrade to move our CS-Studio based [8] UI towards the Eclipse 4 framework has allowed users to be able to better configure the look and feel of the system. Finally, an event mode live view has been created that allows scientists to view data as it is streamed from detectors.

References

- [1] <https://www.isis.stfc.ac.uk/>
- [2] <http://www.ni.com/en-gb/shop/labview.html>
- [3] <https://www.isis.stfc.ac.uk/Pages/IBEX.aspx>
- [4] F A Akeroyd et al., "IBEX - an EPICS based control system for the ISIS pulsed neutron and muon source" J. Phys. Conf. Ser. **1021** (2018) 012019 doi :10.1088/1742-6596/1021/1/012019
- [5] <https://epics-controls.org/>
- [6] <http://pyode.sourceforge.net/>
- [7] <https://forge.frm2.tum.de/nicos/doc/nicos-master/index.html>
- [8] <http://controlsystemstudio.org/>