Adopting and Adapting Control System Studio at Diamond Light Source

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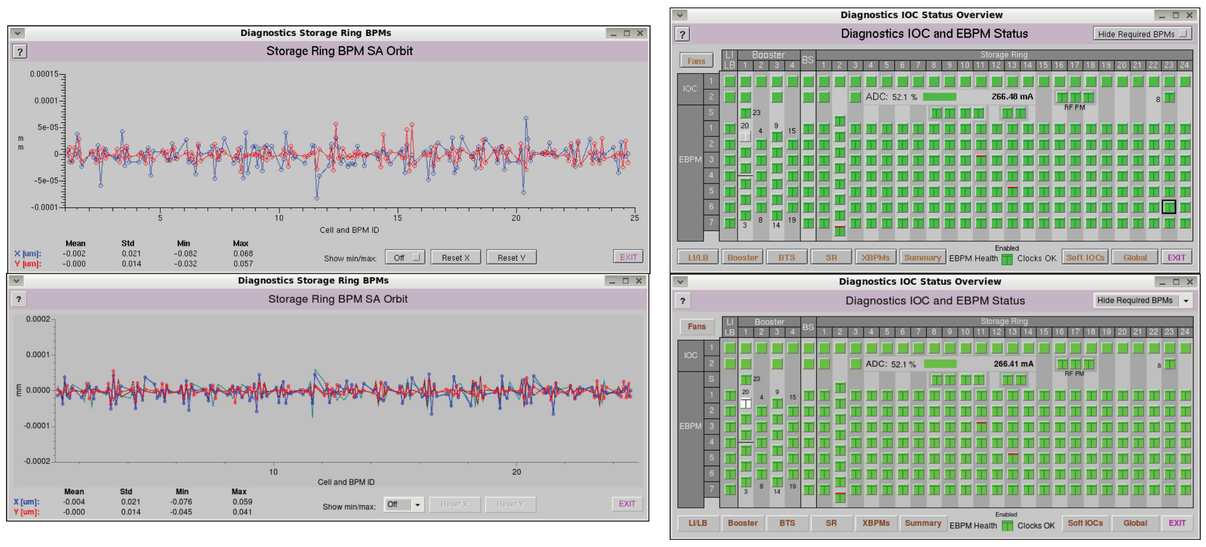
Overview

Diamond Light Source is a third generation light source comprising of an injection chain of a 100 MeV linac, 3 GeV booster ring and a 561.6 m 3 GeV storage ring. There are currently a total of 33 photon beamlines which are either completed, in construction, or planned.

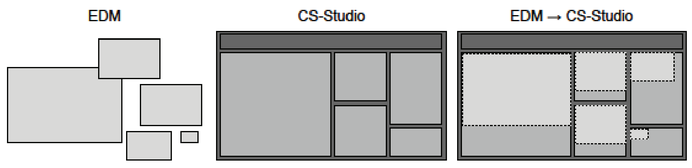
Since commissioning Diamond have use the Extensible Display Manager (EDM) to provide a GUI to its EPICS-based control system. As Linux moves away from X-Windows towards Wayland the future of the widget toolkit on which EDM is based, Motif, is uncertain. While it is possible that EDM could use a more modern toolkit a natural solution would be to choose a more modern tool, leading us to evaluate Control System Studio (CS-Studio) as a replacement.

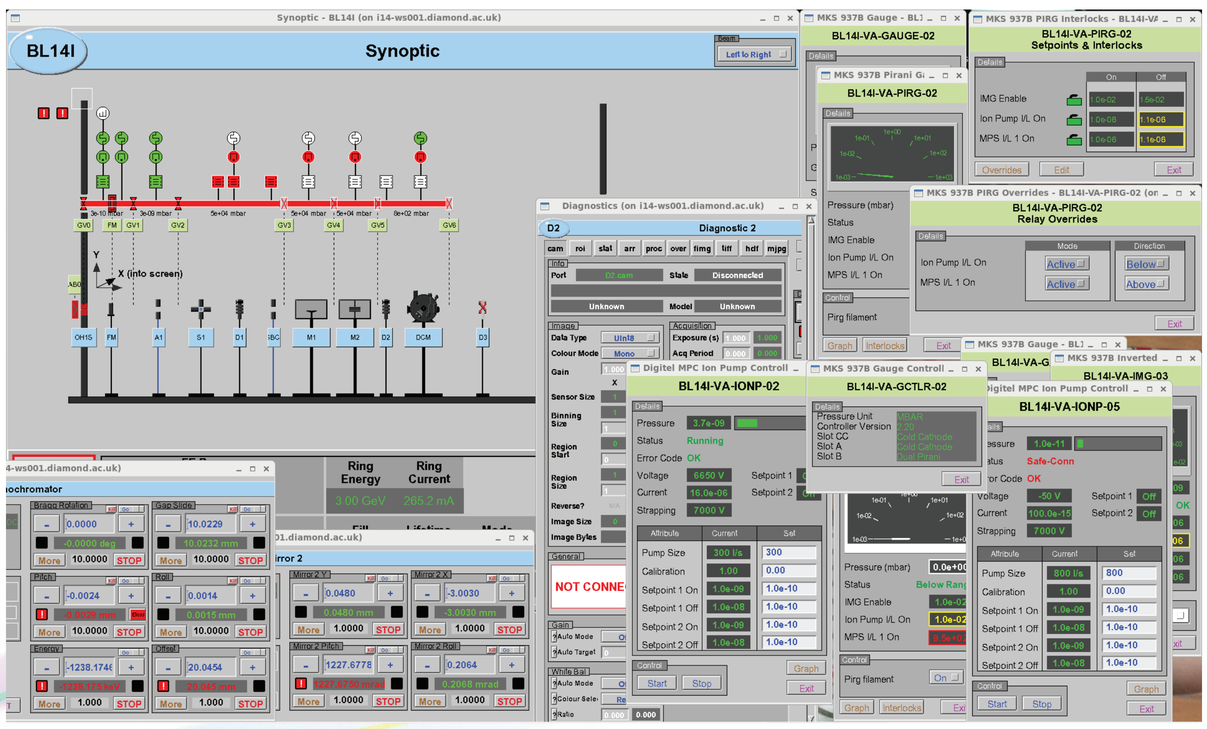
Diamond has a user base accustomed to the interface provided by EDM and an infrastructure designed to launch the multiple windows associated with it. CS-Studio has been adapted by Diamond to provide an interface that is similar to EDM's while keeping the new features of CS-Studio available. This would allow as simple as possible a transition to be made to using CS-Studio as Diamond's user interface to EPICS. It further opens up the possibility of integrating the control system user interface with those in the Eclipse based GDA and DAWN tools which are used for data acquisition and data analysis at Diamond.



Beamlines

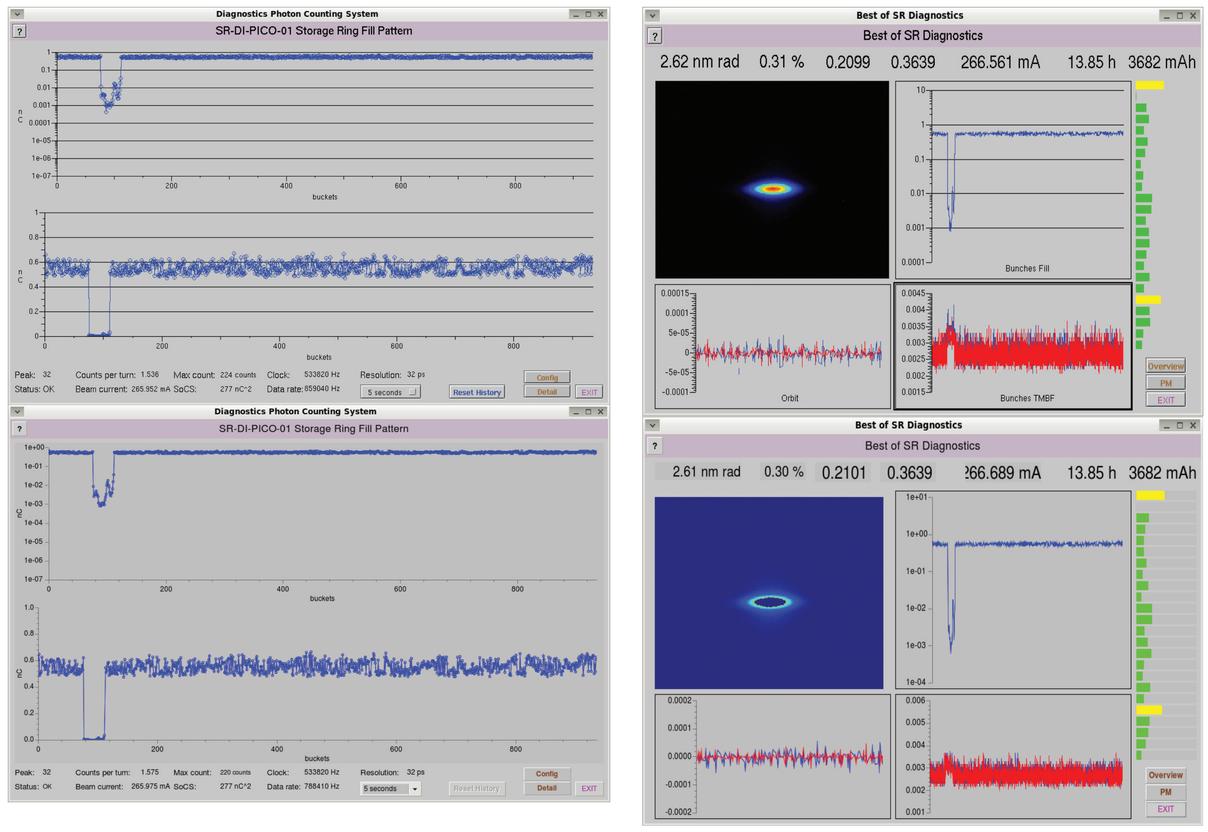
Machine operators work regularly with EDM and carefully manage their screen real estate in a usage paradigm that does not work well with CS-Studio's tabbed window management. For visiting users workflows are often harder to manage. On beamlines we plan to take advantage of CS-Studio's windowing features to help manage layout, while maintaining the same panels for shared machine and beamline areas such as vacuum and motors.

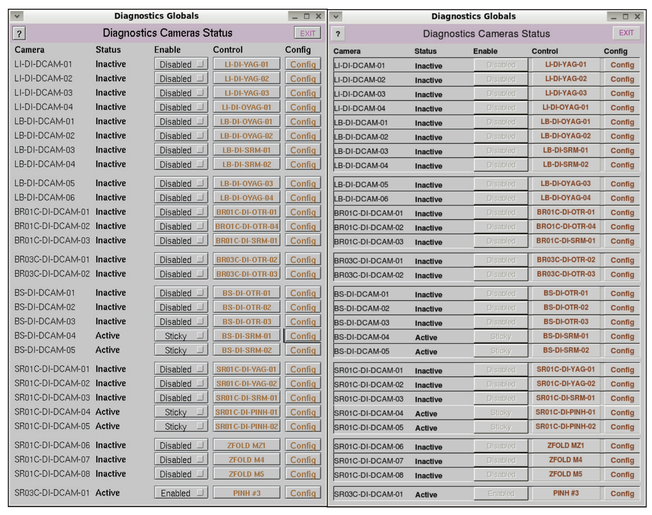


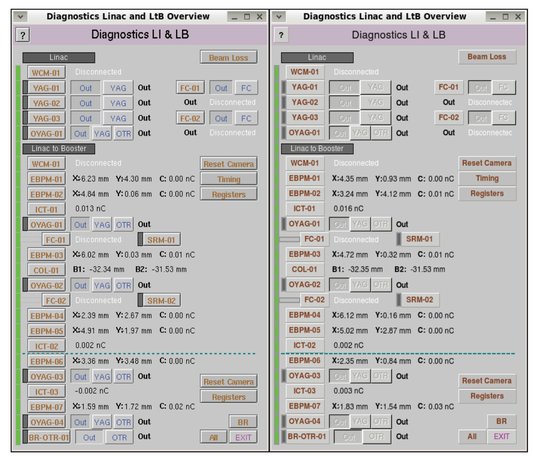


Converter Comparisons

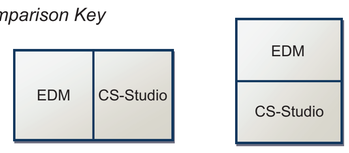
There are around 7000 EDM displays in use at Diamond. If we are to transition our entire GUI framework to CS-Studio automated conversion of our existing panels is essential. The progress of this conversion can be seen in these comparisons.



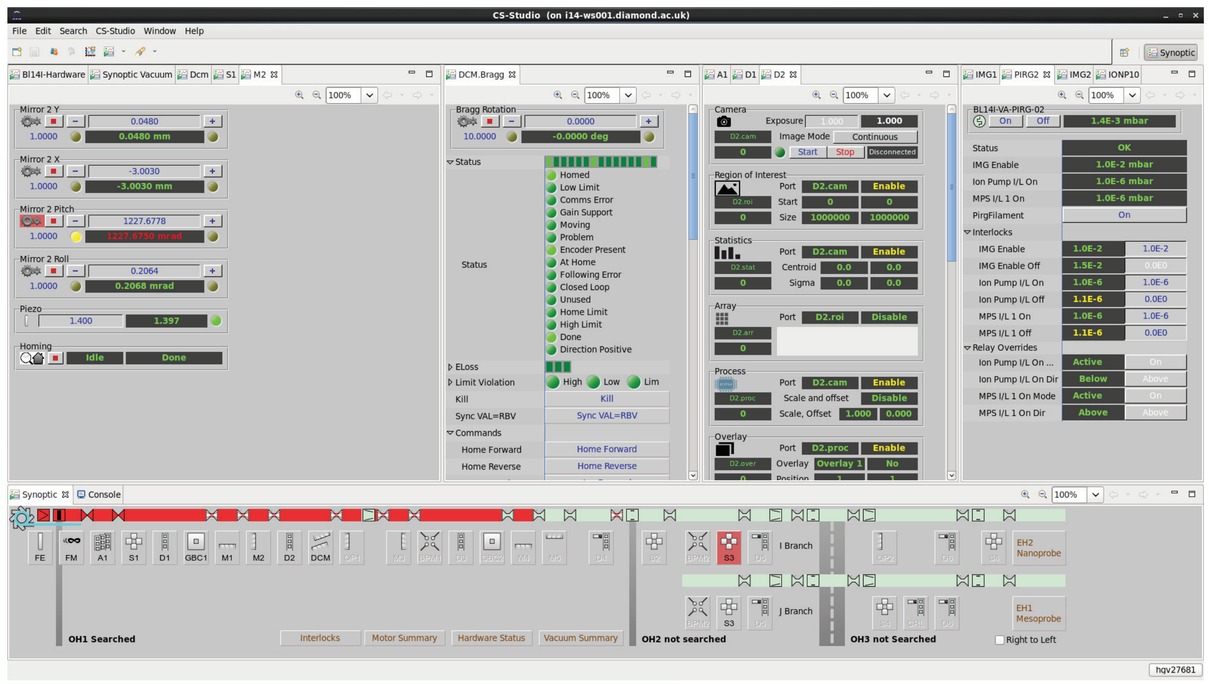




Conversion Comparison Key



Example layout for a beamline using CS-Studio. The synoptic at the bottom provides a status overview while allowing the user to access more detailed panels which open in the panels above.



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