

CONTROLS THROUGH PICTURES - GRAPHICAL TOOLS FOR BUILDING CONTROL SYSTEM SOFTWARE

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Advances in controls hardware performance and reliability have not been matched in the domain of controls software development. Commercial tools are available to improve the software development process, but these are often targeted at the software professional, not the equipment specialist who is often now responsible for low-level equipment interface software. Within the Epics collaboration, graphical tools have been available for some time to aid in the production of systems, but this was restricted to the functional (dataflow) behaviour. In order to build the dynamic (state machine) aspects of a system it was still necessary to write code. In Epics this is done in a specialised language (State Notation Language) which is C like and provides the necessary constructs to build state machines for Epics systems. In order to improve the development and maintenance of systems for the Swiss Light Source, 'Visual State Notation Language' (VSNL), a tool to graphically build Epics state machines, has been developed. This tool allows equipment specialists to very quickly build the code necessary for low-level control of the accelerator. In place of using an intermediate representation of the states, and saving separately the graphical content, VSNL consists of a set of objects containing both graphical and state information. This approach, makes the program easy to maintain, but also easy to adapt to other output formats and target environments.