



# THE NEW CONTROL SOFTWARE FOR THE CERN NA62 BEAM VACUUM

S. Blanchard\*, F. Antoniotti, R. Ferreira, P. Gomes, A. Gutierrez, B. Jenninger, F. Mateo, H. Pereira (CERN, Geneva, Switzerland)  
L. Kopylov, S. Merker (IHEP, Protvino, Russia)

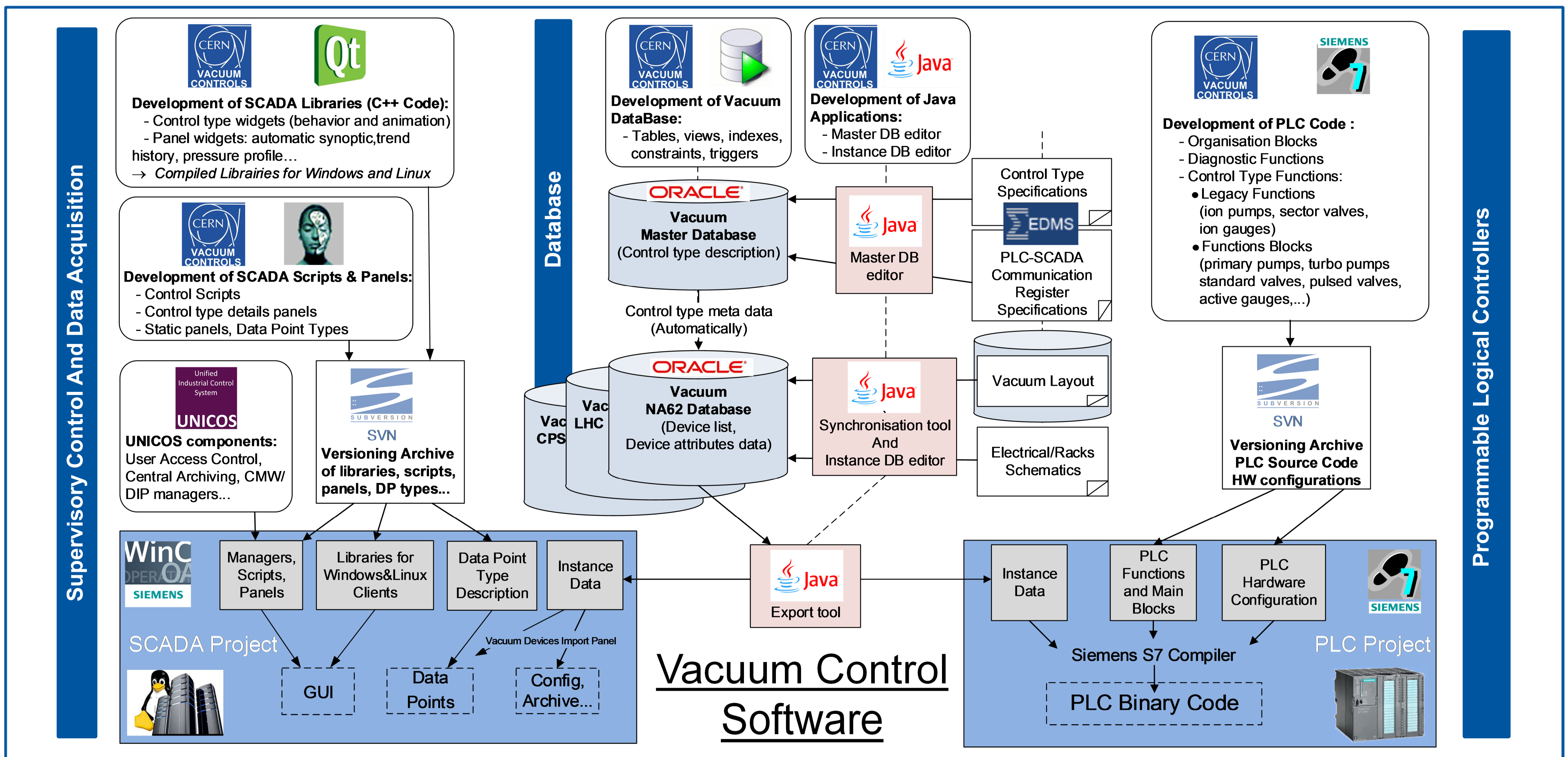


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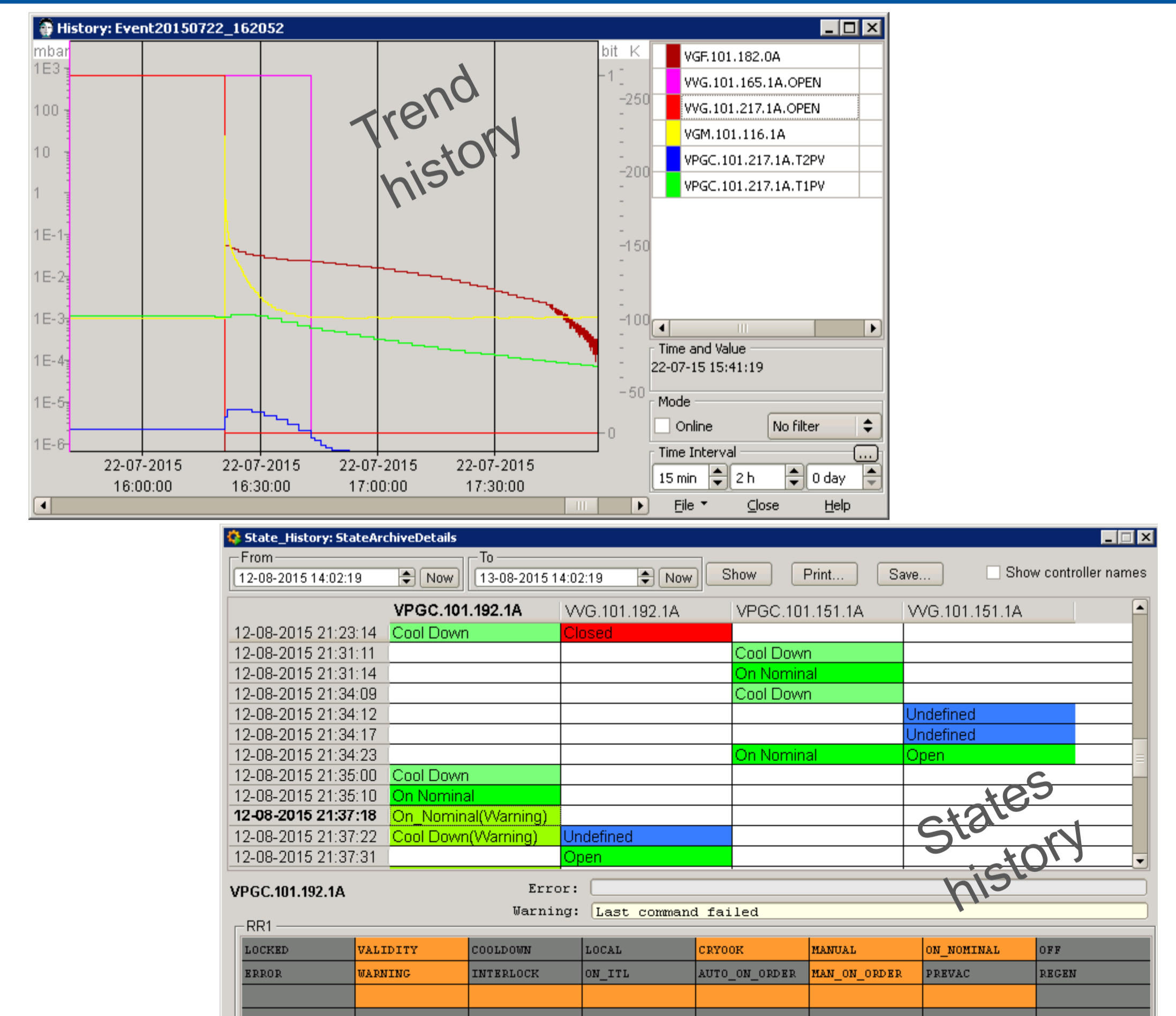
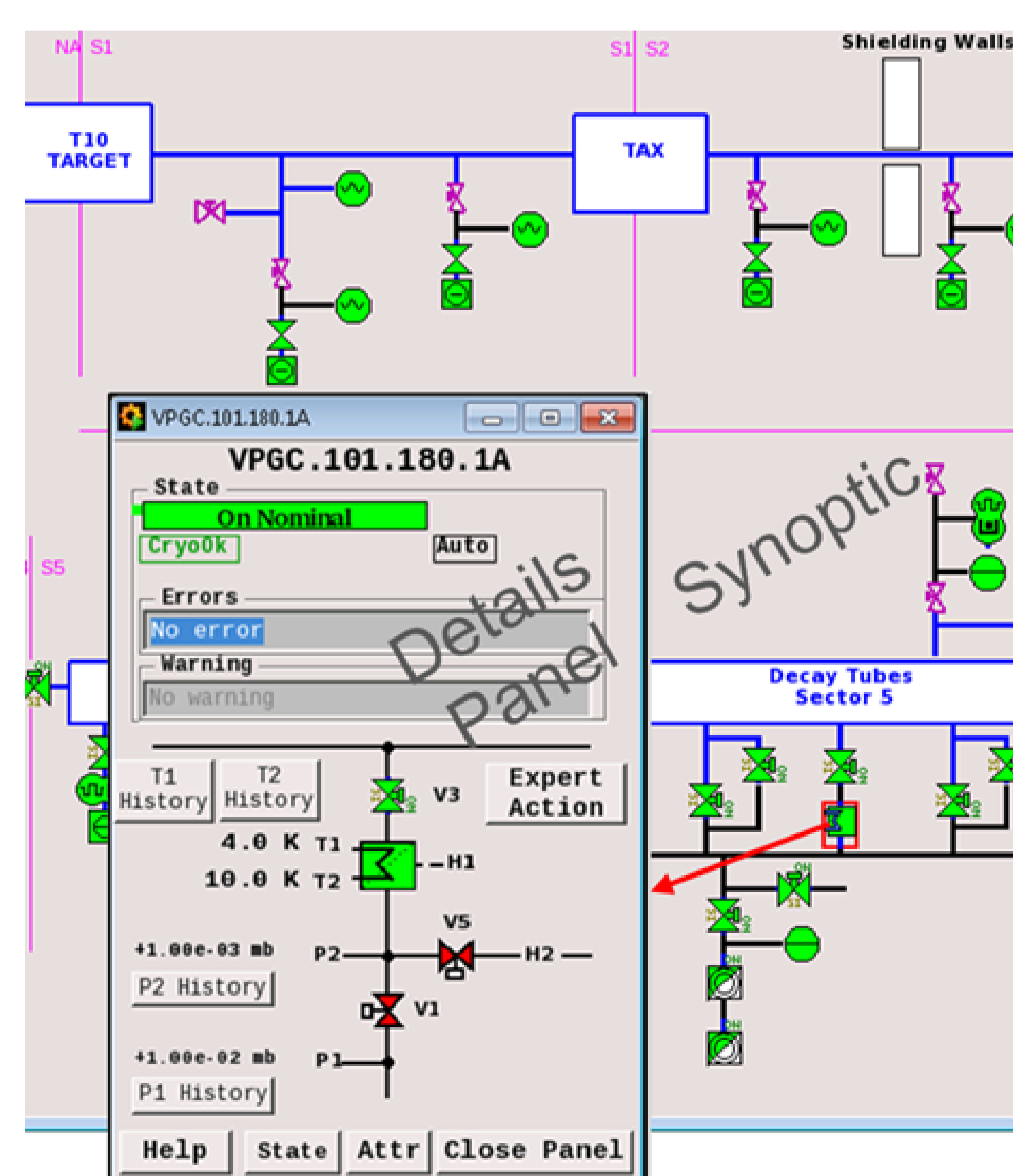
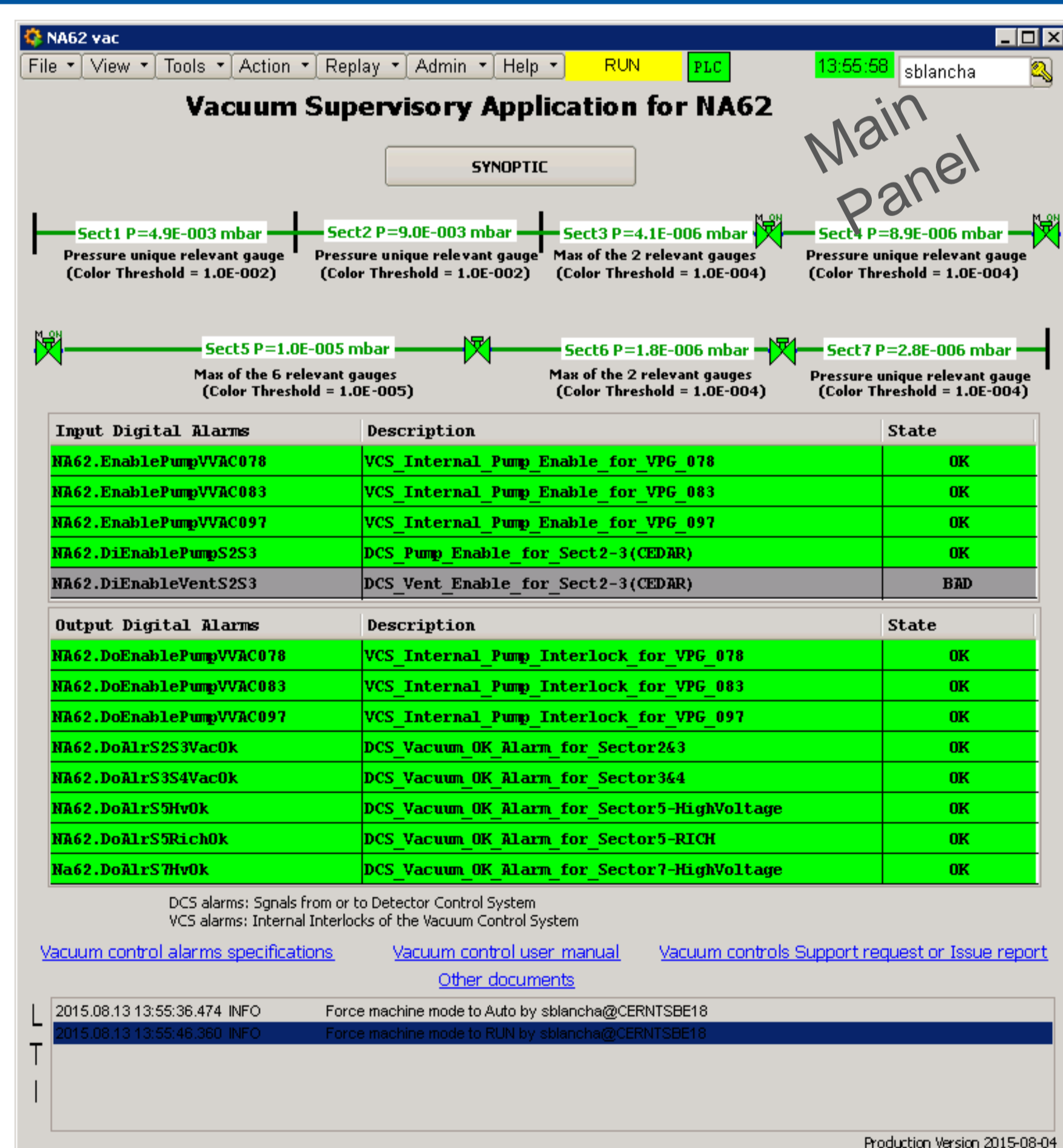
## Abstract

NA62 is a fixed target experiment to measure very rare decays of Kaons at CERN Super Proton Synchrotron accelerator. The NA62 experiment line comprises several large detectors installed inside a vacuum vessel with a length of 250m and an internal diameter of up to 2.8 m. The vacuum installation consists of 170 remote controlled pumps, valves and gauges. The operational specifications of NA62 require a complex vacuum control system: tight interaction between vacuum controllers and detector controllers, including pumping or venting vetoes, and detector start-stop interlocks; most of the valves are interlocked, including the large vacuum sector gate valves; the vacuum devices are driven by 20 logic processes.

The vacuum control system is based on commercial Programmable Logical Controllers (Siemens PLC: S7-300 series) and Supervisory Control And Data Acquisition application (Siemens SCADA: WINCC OA). The control software is built upon the standard framework used in CERN accelerators vacuum, with some specific developments. We describe the control architecture, and report on the particular requirements and the solutions implemented.



## Graphical User Interface



## Conclusion

The vacuum control framework has shown a high level of flexibility, while being used to build the core of the NA62 vacuum control system. New device types and particular user specifications required custom developments. Thanks to the well-organized structure of the vacuum control framework, the new control types and functionalities have been easily developed and deployed. The result is a very effective control system well adapted to NA62 experiment layout and operational specifications.

