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KaraboGui - The Cockpit of the Supervisory Control and Data Acquisition System Karabo

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At the European XFEL, the inhouse developed Supervisory Control and Data Acquisition System (SCADA) Karabo has been steering and facilitating scientific experiments at the photon beamlines since the free-electron laser started its operation in 2017.

A single Graphical User Interface (GUI), the so-called KaraboGui, has been designed as a multi-purpose application and is the preferred entry point to the control system. Implementing a nowadays standard event-driven asynchronous server-client approach, this application based on Python [2] and Qt [3] is the prime choice for hardware and experiment control and as well configuring detector calibration and data acquisition. Equipped with a generic panel builder and a package updater for external component extensions, the KaraboGui matches the requirements of a present and future graphical user interface for the experiments.

All user-interface panels build in the KaraboGui can be translated into a Scalable Vector Graphics (SVG) representation and loaded or edited with an SVG graphics program (e.g. Inkscape [4]).

This contribution describes in detail the client application KaraboGui and its usage at the European XFEL with an outlook of a web representation.

References

- [1] Hauf, Steffen, et al. "The Karabo distributed control system." *Journal of synchrotron radiation* 26.5 (2019): 1448-1461.
- [2] Python. <https://docs.python.org/3/library/>
- [3] Qt Framework. <https://www.qt.io/>
- [4] Inkscape. <http://www.inkscape.org/>

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