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SECoP: The Sample Environment Communication Protocol

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The integration of sample environment (SE) equipment in a beam line experiment is a complex challenge both in the physical world and in the digital world. Different experiment control software offer different interfaces for the connection of SE equipment. Therefore, it is time-consuming to integrate new SE or to share SE equipment between facilities.

To tackle this problem, the International Society for Sample Environment (ISSE) developed the Sample Environment Communication Protocol (SECoP) to standardize the communication between instrument control software and SE equipment (see [1] and references therein). SECoP offers, on the one hand, a generalized way to control SE equipment. On the other hand, SECoP holds the possibility to transport SE metadata in a well-defined way.

Using SECoP as a common standard for controlling SE equipment and generating SE metadata will save resources and intrinsically give the opportunity to supply standardized and FAIR data compliant SE metadata. It will also supply a well-defined interface for user-provided SE equipment, for equipment shared by different research facilities and for industry.

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