RFP #2025-01: SiLA ELN Connector

Request for Proposal to specify and implement an
open source SiLA Connector to RSpace

Introduction to SiLA2 and RSpace

Digitalization and automatic documentation are key to laboratory automation. The SiLA 2 standard is a modern communication protocol that enables flexible integration of laboratory devices, software, and data management through open web interfaces. Using HTTP/2, Protocol Buffers, and a microservice architecture, SiLA 2 offers plug-and-play connectivity and dynamic device descriptions that promote interoperability, reduce integration effort, and make laboratory automation efficient and future-proof.

RSpace is an open-source Electronic Laboratory Notebook (ELN) that helps researchers organize, store, and share experimental data. It includes an inventory management system for easy tracking of samples and materials, as well as an API for seamless integration and workflow automation. With a free community version, RSpace supports secure collaboration and flexible use for research labs.

A SiLA-ELN connector will significantly increase the adoption of SiLA, as ELNs are among the most widely used digital tools in laboratories. SiLA 2 is ideally suited to directly insert data from lab devices into the laboratory notebook, greatly enhancing data integrity and documentation efficiency.

Problem Statement

Currently, it is time-consuming and cumbersome to directly save raw data from a laboratory device into an Electronic Laboratory Notebook (ELN). Typically, data files must first be copied manually, and relevant data is then extracted by hand before being entered into the ELN. This manual process increases the risk of errors, slows down documentation, and diminishes data integrity. The lack of seamless, automated data transfer between devices and ELNs remains a significant bottleneck in efficient laboratory workflows.

Target User

The targeted users for a SiLA ELN connector are independent lab heads, academics, and small industry researchers who typically use simple, standalone ELNs without fixed or automated data transfer solutions. These users often face changing experiments and protocols, which means rigid data pipelines are impractical. They require flexible, adaptable integration tools to handle dynamic workflows without extensive IT infrastructure. The SiLA ELN connector offers an easy-to-use, standardized interface to bridge lab instruments and ELNs, streamlining data capture in environments where bespoke, complex automation is not feasible, fostering efficiency and data integrity in evolving research settings.

Expected Work Items / In Scope

- W1 Analysis of required Features, what Data must be transferred.
- W2: Analysis of RSpace API
- W3: Feature definitions for SiLA2-ELN Connectors.
- W4: Prototypical implementation of a SiLA2-RSpace Connector in python based on uniteLabs connector Kit.

Acceptance Criteria

- A1:Feature definitions agreed on by Adoptions Workgroup..
- A2: Working SiLA-RSpace connector uploaded to SiLA Github
- A3: Code fulfills SiLA CyberSecurity rules
- A4: Build-pipeline for standalone .exe for distribution via SiLA installer
- A5: Upload connector to pypi and demonstrate installation
- A6: Comprehensive documentation for installing.

Budget

The SiLA Organization will commit to invest 3 kCHF.

Submission of Proposal

Please submit your proposal to the SiLA office by e-mail, according to the requirements as indicated in this document.

Please sketch your ideas about how you anticipate to implement the solution. You may also want to specify libraries, framework you intend to use and mock-up of the frontend design.

Please indicate your pricing model and payment schedule, as well as key contact person(s).

Please provide your proposal in electronic format (PDF preferably) with no more than four (4) A4-format pages.

Milestones

1. 01. November 2025: Submission of Request for proposals (this document)
2. 01 December 2025: Deadline for submission of proposals
3. 12 December 2025: Decision by SiLA Adoptions WG
4. 15 December 2025: Start of work
5. ~31 June 2026 End of Work
6. ~31 December 2026 Git Maintenance Bugfixes

Anticipated time for work package execution and delivery of artifacts: 4-8 months.

Contacts

- In case of questions before the submission deadline, please contact the SiLA CTO or Adoptions workgroup leader by e-mail: daniel.juchli@sila-standard.org / tim.meyer@sila-standard.org
- For Questions concerning RSpace, Inventory, and RSpace API please contact Tilo Mathes: tilo.mathes@researchspace.com
- To submit your offer, please send it to the SiLA office by e-mail: carmen.condrau@sila-standard.org

References

1. Juchli, D. *et al.* SiLA 2 Part (A) - Overview, Concepts and Core Specification. Preprint at https://sila-standard.com/wp-content/uploads/2022/03/SiLA-2-Part-A-Overview-Concepts-and-C

ore-Specification-v1.1.pdf (2022).
2. Juchli, D. SiLA 2 Part (B) - Mapping Specification. Preprint at https://sila-standard.com/wp-content/uploads/2022/03/SiLA-2-Part-B-Mapping-Specification-v1.1.pdf (2022).
3. Juchli, D. Standardization in Lab Automation (SiLA). https://analyticalscience.wiley.com/do/10.1002/was.00050276 (2021).