

RFP #2023-01: SiLA Installer

Request for Proposal to specify and implement an open source SiLA App Installer

Introduction to SiLA 2

Please refer to References^{1,2}.

Problem Statement

Following the vision to allow every lab to connect and digitalize SiLA aims at supporting the growing community of end users in the best possible way by providing a general and intuitive graphical user interface for installation and maintenance of SiLA components. Bringing a functional SiLA Backbone into laboratories with no prior automation infrastructure will help to spread the SiLA standard. The GUI will serve as frontend to a SiLA-curated repository and to commercial software.

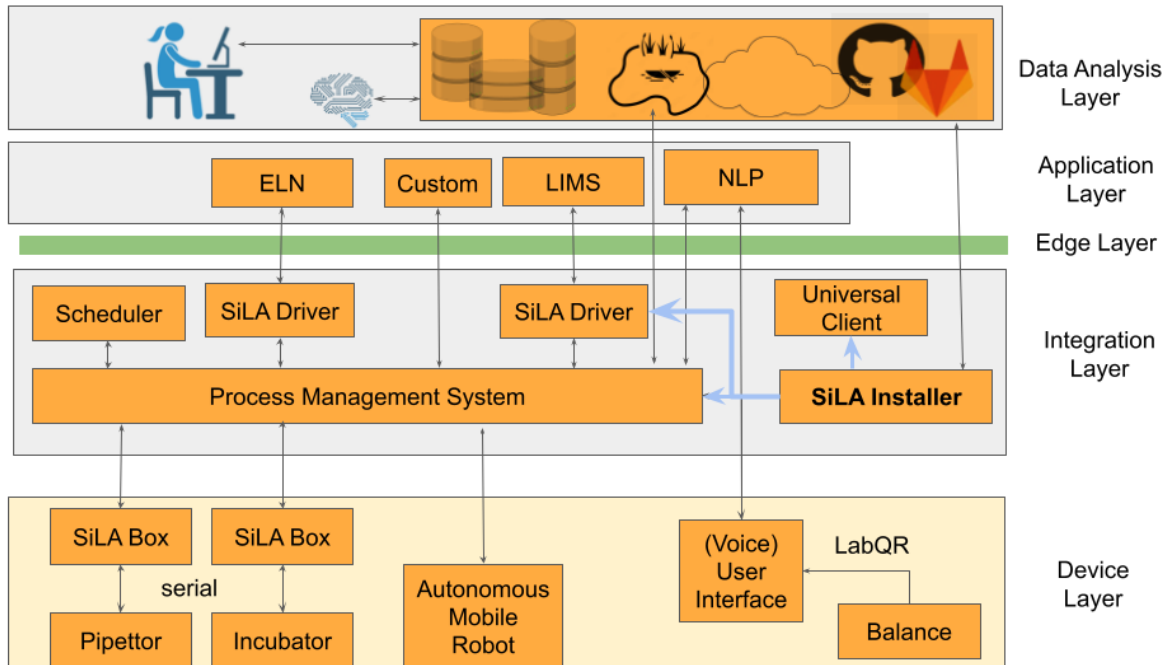


Figure 1: The SiLA installer shall connect to online software sources (OpenSource and commercial) and install pre-configured implementations of the Universal Sila Client, the SiLA Orchestrator and SiLA connectors to online resources such as LIMS and ELN. Figure adapted

from³ . Resources other than SiLA repositories can be used for software retrieval.

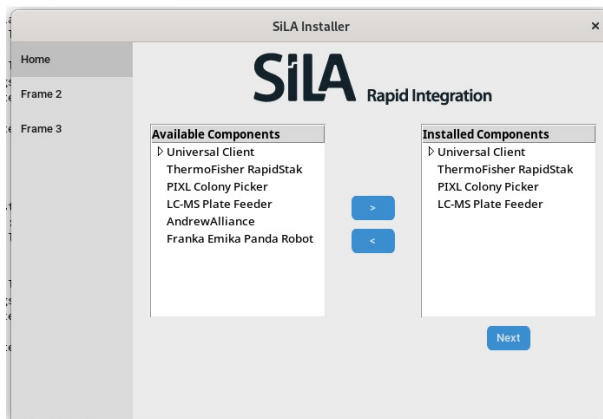


Figure 2: Possible appearance of SiLA installer GUI. Different sources can be chosen to show Development and Production-grade software

The statement of work is to create an interactive SiLA Installer. The installer shall provide visual guidance throughout the entire installation and configuration process. Especially, the following phases shall be supported:

- Retrieval of SiLA compliant implementations including their configuration parameters from a dedicated, curated Software source (SiLA Shop Front)
- Retrieval of SiLA compliant implementations from partners (SiLA App-Store)
- Selection of baseline components, including their **configuration process**
- Manage existing certificates/ create new trusted certificates
- Installation into the host system
- Subsequent modification of baseline components including:
 - Installation
 - (re-) Configuration
 - Updates
 - Removal

The to-be-developed application must be able to run by people with low IT affinity on either their local device or a cloud environment.

The used technology (e.g. programming language, libraries) should be mainstream, open and free to use and should provide good documentation and be actively developed.

The developed application under this RFP should be licensed under MIT and therefore requires all used libraries to comply.

Target User

Naive to laboratory automation, (Master, PhD Student), academic and/or low-budget environment. Working on a desktop computer with standard permissions he/she wants to get a first feeling of how workflow automation can help him/her in the daily routine. The user is preparing and analyzing experiments in the office while execution is done in a restricted, paper-free laboratory environment and/or sterile laminar flow.

Expected Work Items / In Scope

- W1 - Create an interactive ·SiLA Installer· that can be installed and executed locally on Microsoft Windows Systems (\geq Windows 10). The installation of the installer shall not require root privileges. The installer shall fetch a database containing installable SiLA components from a central registry. The user is able to select particular components to be downloaded and installed from a Graphical User Interface. The work item W1 focuses on the visual representation, the registry, and the ability to install the SiLA Universal Client⁴.
- W2: The installer shall differentiate between Development and Production Implementations and offer respective filters
- W3: Provide functional integration of at least **three** SiLA Awesome components which can be installed through the installer (Development).
- W3 - Participation and progress updates in SiLA 2 Demo working group online meetings.

Acceptance Criteria

- A1: Execution of automated and/or manual test cases that demonstrate fulfillment of requirements as listed in the work items.
- A2: Simple local installation and execution.
- A3: Installer Checks Firewall Rules on Host System and gives feedback for troubleshooting
- A4: Source code and documentation is made available on the SiLA2 Gitlab Repository.
- A5: Installs/uninstalls/Updates Itself (SiLA Installer)
- A5: Installs/uninstalls/Updates Universal SiLA Client
- A6: Installs/uninstalls/Updates Sila Orchestrator
- A7: Installs/uninstalls/Updates SiLA Connector to cloud LIMS/ELN
- A8: Comprehensive documentation for installing and using the universal ·SiLA Installer.

- A9: Preferred: Python or Java; optional other Programming languages compliant with the existing SiLA Code base and supporting for macOS/windows/Linux

Budget

The SiLA Organization will commit to invest 10 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. 1 July 2023: Submission of Request for proposals (this document)
2. 15 August 2023: Deadline for submission of proposals
3. 1 September 2023: Decision by SiLA WG/BoD
4. 15 September 2023: Start of work
5. ~31.12.2023 Installer GUI Demo
6. ~31.01.2024 Installation of USC and Server [W2]
7. ~28.02.2024 Installation of PMS working
8. ~31.03.2024 Presentation Demo Workflow
9. ~September 2024 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 and Demo workgroup leader by e-mail:
daniel.juchli@silastandard.org / tim.meyer@silastandard.org
- To submit your offer, please send it to the SiLA office by e-mail:
carmen.condrau@silastandard.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-Core-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).
4. Diguët, T. *Universal Sila Client*. (2023). https://gitlab.com/SiLA2/universal-sila-client/sila_universal_client