Instructions for Use

SiLA2

Absorbance 96 App

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SiLA2 Absorbance 96 App
Version 1.0 (21/09/2023)

1   General information

This manual focuses on the SiLA2 functionality within the Absorbance 96 App. For a comprehensive understanding of the complete range of features offered by the app, please consult the Absorbance 96 App manual.

SiLA2 ("Standardization in Lab Automation, Version 2", see sila-standard.com) is a communications standard created to improve interoperability between laboratory devices and software from different vendors. Any device or software conforming to this standard exposes its functionality through a self-descriptive interface made up from basic, well-defined building blocks. As such it can be easily integrated into automated workflows without the need for custom or vendor-specific solutions.

The Absorbance 96 App exposes its core functionality through a SiLA2 compliant interface: Loading protocols, running assays, and exporting the results.

In this manual, particularly important remarks are labeled as followed:

Warning:

⚠   This is a warning that indicates an immediately or potentially dangerous situation, which, if not avoided, will result in death or serious injury.

Caution:

🤚   Caution indicates a potentially hazardous situation, which, if not avoided, could result in minor or moderate injury.

Information:

ⓘ   This is a piece of information indicating certain properties that must be observed.

About this manual

Important: Follow the instructions for use

This user manual may only be used according to its intended purpose. It may not be reproduced, changed, or translated into another language without the prior written consent of Byonoy GmbH.

This document is subject to technical changes and updates.

2   Enabling the SiLA2 Functionality

To enable the SiLA2 remote control interface, the application must be started with certain CLI (Command Line Interface) parameters. The `--sila` parameter is required to enable the SiLA2 functionality, all other parameters are optional.

See appendices A and B for information on how to launch an application using CLI parameters on Windows and macOS, respectively.

`--sila`	Start the SiLA2 remote control server.
`--sila-uuid <uuid>`	Set the server UUID. If not provided a UUID will be generated on first start.
`--sila-port <port>`	Set listen port for SilA server. Defaults to 50051.
`--sila-ip <ip>`	Set the bind IP for SilA server. Defaults to 127.0.0.1.
`--sila-insecure`	Start SiLA2 server without encryption.
`--sila-ca-cert <ca-cert-file>`	Set the CA certificate file.
`--sila-cert <cert-file>`	Set the server certificate file.
`--sila-key <key-file>`	Set the server key file.
`--sila-out-cert <out-cert-file>`	Set a file name where the self-signed certificate will be written.
`--headless`	Launch headless, i.e., do not show the application window.

Application Window

By default, the application will still show the application window as normal. This can be useful to observe the actions triggered by a SiLA2 client, but it also means that a user can inadvertently interfere with automated processes. Use the `--headless` parameter to hide the application window. When running headlessly, the application can only be shut down through the SiLA2 interface function QuitApplication.

Network Configuration

By default, the SiLA2 server will bind to the IP address 127.0.0.1, thereby limiting the visibility to clients running on the same computer. Set the `--sila-ip` parameter to 0.0.0.0 or to a specific network adapter's IP address to make the server visible to clients on the network. Note that on Windows, this may trigger a firewall prompt the first time it is run which may require administrator privileges to approve.

The SiLA2 server will try to advertise its presence on the local network through Bonjour, if available. On Windows this usually requires the installation of Bonjour Print Services for Windows (https://support.apple.com/kb/dl999). On macOS no additional setup is required.

Communication security

Communication security can be configured for three different scenarios.

Key and certificate files
Set the certificate and private key files to be used for encryption via `--sila-cert` and `--sila-key`. Optionally, also set `--sila-ca-cert` to point to the CA certificate that verifies the server certificate. Both the certificate and the key file must be provided. All files must be in PEM format.

Self-signed certificate
When no key and certificate files are provided the application will generate a self-signed certificate. The certificate will be written to the application log file or to a file as specified by `--sila-out-cert`.
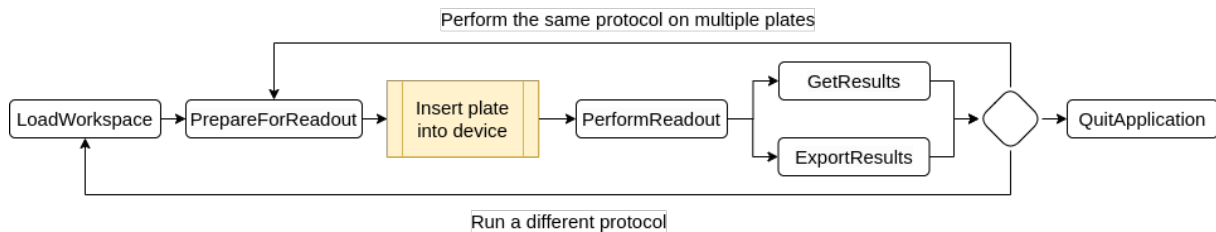
Insecure communication
The SiLA2 standard expressly forbids this operation mode. For testing purposes, the application can be started with `--sila-insecure` to accept insecure connections.

Do not use this in a production environment.

3   Controlling the application via SiLA2

The application exposes two SiLA2 features: The standard SiLA2 LockController and the application specific ApplicationController. Every command from the ApplicationController feature requires a valid LockId to be sent along as metadata.

The following commands are available:

LoadWorkspace

Load an assay file from a given URL. The URL may point to a file on the computer running the application or to an HTTP address. When loading from disk use the file:// URL scheme. On windows, this means that the URL must start with `file:///` followed by the file path using **forward** slashes as the path separator.

Some valid examples of URIs for this command include:

A server on the internet: `https://example.com/protocol.byop`

A server on the local network: `http://192.168.100.50/protocol.byop`

An application-local file path on Windows: `file:///C:/Users/user/protocol.byop`

PrepareForReadout

Check the connection to the reader, the reader's status, and the compatibility of the loaded assay with the reader. After this command has finished successfully, the plate may be inserted into the reader.

This command can only be executed after a file has been loaded through LoadWorkspace.

PerformReadout

Perform the measurement as determined by the loaded file. After this command has finished successfully, the plate may be removed from the reader.

This command can only be executed after the reader has been prepared through PrepareForReadout.

ExportResults and GetResults

Retrieve the measurements and other computed results. Use ExportResults to write the results to a file on the computer running the application or GetResults to fetch the results as a binary transfer to the SiLA2 client.

These commands can only be executed after a successful measurement through PerformReadout. These commands can be executed multiple times to export data in different formats or to different locations.
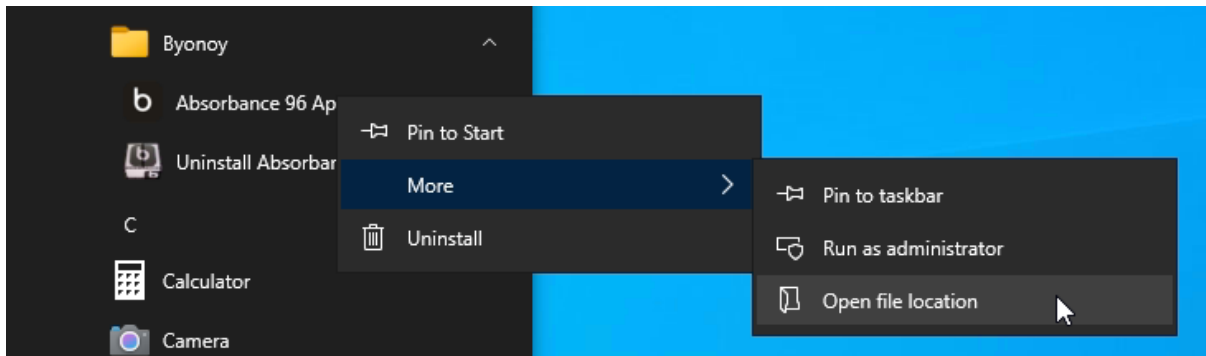
ⓘ   **Please note that PDF export via the SiLA2 interface is currently not available.**

QuitApplication

Shut the application down.

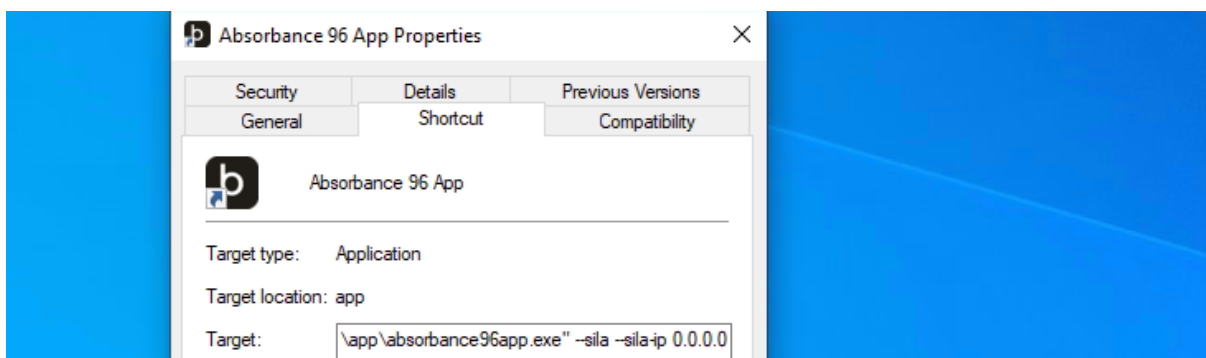## 4   Appendix A: Start the app with parameters on Windows

Right-click the shortcut to the app in the start menu and select "Open file location".

A file explorer window will open. Right-click the application shortcut therein and select "Properties". Optionally, you may choose to make a copy of the shortcut first, allowing you to launch the app with or without SiLA2 through the respective shortcut.
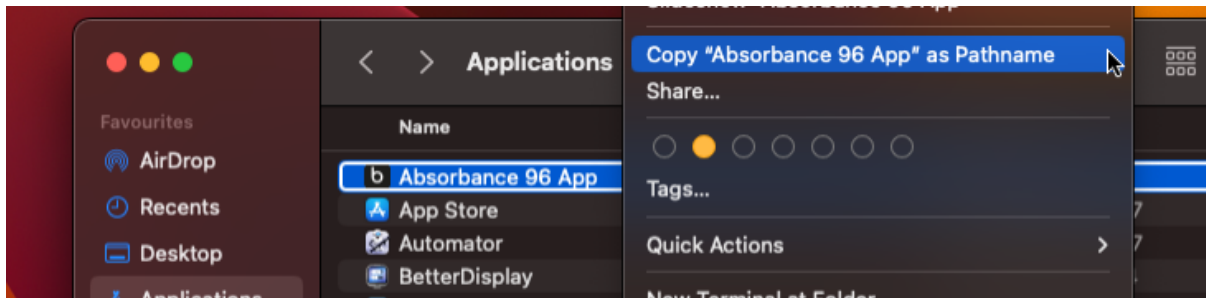

In the Properties window add the CLI parameters to the end of the Target input box. If the path contains quotation marks, the parameters must come after the closing quotation mark.
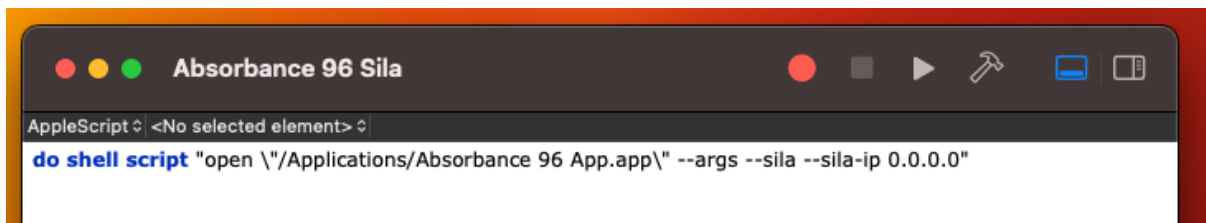
5 Appendix B: Start the app with parameters on macOS

Open a Finder window and navigate to the Applications Folder. Right-click or Control-click the app. Press and hold the Options key and select Copy as Pathname.
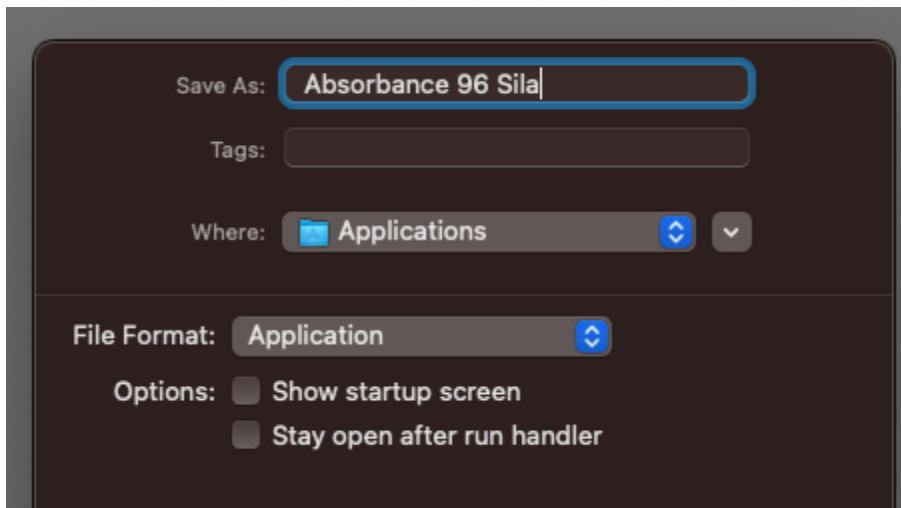

Launch Script Editor from Applications/Utilities and click New Document. Enter the following using the path copied in the previous step.

do shell script "open \"/Applications/Absorbance 96 App.app\" --args

Add any additional CLI arguments from the table to the end of the line.

Save the script via the File menu selecting the Applications folder as Where and Application as file format. Ensure that both additional options are unchecked.

The script will now appear in the Applications folder as a separate app.