

# Firmware Update Guide

AH52126\_FU01E\_02 2025-03-12



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## **Revision History**

Document Number	Date	Page	Description
AH52126_FU01E_01	2023-01-18		Initial Release
AH52126_FU01E_02	2025-03-12	p.11	Add firmware version 2.0

### Conventions used in this manual

#### Styles and formats

In addition to regular styles, this manual uses the following styles for special purposes:

Bold	Indicates important information in running text and character strings provided by the use			
	at the terminal.			
Italic	Indicates information that varies depending on the user's environment.			
mono	Indicates command names and command options.			

The following format shows a single command line:

```
command -p environment-specific-string
```

The following format shows input and output in the terminal command prompt:

```
$ command ↓
Message
```

Special characters used in the above prompt have the following meanings:

- > Indicates the PowerShell prompt.
- **\$** Indicates the Bash prompt. It is used in Linux, and macOS 10.14 Mojave or earlier.
- % Indicates the Zsh prompt. It is used in macOS 10.15 Catalina or later.
- Indicates pressing the Enter key.

#### Symbols used in this manual



Indicates reference or supplemental information.



Indicates an important note.

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# Chapter 1

# Updating the firmware

This chapter explains how to update the firmware of SHALO AUTH.

Firmware updates can be performed from the following operating systems.

- Windows
- macOS
- Linux

#### Topics in this chapter

- 1. What is needed before updating the firmware?
- 2. How to launch the firmware updater
- 3. Step-by-step procedure

#### **1.1** What is needed before updating the firmware?

#### 1.1.1 Add other authentication methods to services that use SHALO AUTH

When SHALO AUTH is restored to the factory settings, all the following information is removed:

- SO PIN
- User PIN
- Device label
- All PKCS #11 data
- All FIDO authentication keys



All the FIDO authentication keys used for U2F will be removed, so the device will be recognized as an unregistered even by Web services that have previously registered the device.

If you are using SHALO AUTH for Web services or ssh authentication, **you need to add a different authentication method than SHALO AUTH** so that you can authenticate without SHALO AUTH.

#### 1.1.2 Remember and unlock the SO PIN (only if SHALO AUTH has been set)

If SHALO AUTH has been set, SO PIN must be entered when updating the firmware; if SO PIN is forgotten or SO PIN is locked, firmware update cannot be performed.

In such cases, SHALO AUTH must be restored to the factory settings with SHALO Smith. See section 5.3 "Restoring SHALO AUTH to the factory settings" of SHALO AUTH User Manual for operating instructions.



Firmware update can be performed without SO PIN if SHALO AUTH has not been set with SHALO Smith or SHALO Keyring.

This is also the case when SHALO AUTH has been restored to factory settings.

#### 1.1.3 Terminate the applications that are using SHALO AUTH

Terminate the applications that are using SHALO AUTH, such as SHALO Keyring or SHALO Smith. The same goes for applications that use the PKCS #11 module for SHALO AUTH.

If the PKCS #11 module is loaded in ssh-agent, the authentication agent of OpenSSH, the module must be unloaded from ssh-agent.

#### **1.2** How to launch the firmware updater

#### 1.2.1 Launch on Windows

The firmware updater for Windows can be downloaded from <u>https://auth.shalo.jp</u>. To launch it, do the following.

First, attach one SHALO AUTH to your PC.

Then, run the shaloauth\_updater\_2.0\_windows.exe file you downloaded (where 2.0 indicates the version number) from PowerShell as follows.

PS C:\> DownLoad-Folder\shaloauth\_updater\_2.0\_windows.exe4



To easily enter the file path, drag and drop shaloauth\_updater\_2.0\_windows.exe from your download folder into the PowerShell window.

See section 1.3 for further operations.

#### 1.2.2 Launch on macOS

The firmware updater for macOS can be downloaded <u>https://auth.shalo.jp</u>. To launch it, do the following.

First, attach one SHALO AUTH to your PC.

Next, double-click on the downloaded shaloauth\_updater\_2.0\_macos.dmg file (where 2.0 indicates the version number). The SHALO\_AUTH\_UPDATER\_v2.0 window will then appear.

And finally, run shaloauth-updater-v2\_0 in the SHALO\_AUTH\_UPDATER\_v2.0 window from Terminal as follows:





To easily enter the file path, drag and drop shaloauth-updater-v2\_0 from the SHALO\_AUTH\_UPDATER\_v2.0 window into a Terminal window.

See section 1.3 for further operations.

#### 1.2.3 Launch on Linux

The firmware updater for Linux can be downloaded <u>https://auth.shalo.jp</u>. To launch it, do the following.

First, attach one SHALO AUTH to your PC.

Then, extract the shaloauth\_updater\_2.0\_linux.tar.gz file you downloaded (where 2.0 indicates the version number). In the Terminal, go to the folder where the file is stored, and execute the following command:

```
$ tar xvzf shaloauth_updater_2.0_linux.tar.gz 
shaloauth-updater-v2_0
```

And finally, run the extracted shaloauth-updater-v2\_0 from Terminal as follows:

```
$ ./shaloauth-updater-v2_04
```

If an udev rules file for SHALO AUTH is not installed on Linux, the following warning message will appear when a non-root user runs the firmware updater.

```
[WARN ] SHALO AUTH not found. Please attach one SHALO AUTH device to the PC.
Update canceled.
```

In such a case, use **sudo** command as follows.

```
$ sudo ./shaloauth-updater-v2_0.]
[sudo] password for user: Enter-your-password.]
```

See section 1.3 for further operations.

#### 1.3 Step-by-step procedure

An example of updating firmware with the firmware updater is shown below. Here is a stepby-step procedure to follow along with this example.

The firmware updater checks the status of SHALO AUTH and outputs the following message according to the result.

Messages			
SHALO AUTH can be updated. ver. <i>X.Y</i> -> ver. <i>A.B</i>			
Current firmware is ver. X. Y. No update is needed.			
[WARN ] SHALO AUTH not found. Please attach one SHALO AUTH device to the PC.			
[WARN ] Found <i>Number</i> SHALO AUTH devices; only one should be attached.			
[ERROR ] SHALO AUTH is being used by another app.			

If SHALO AUTH can be updated, the updater outputs as shows below. Enter  $\mathbf{n}$  to cancel the update or  $\mathbf{y}$  to continue, then press ENTER.

```
CAUTION

PINs and all keys of SHALO AUTH will be erased.

All FIDO2/U2F authentication keys will also be deleted.

DO NOT shutdown or sleep your PC during updating.

Are you sure to update the firmware? [y/n]:
```

Updating the firmware will remove the following information:

- SO PIN and user PIN
- Device label
- All PKCS #11 data
- All FIDO authentication keys



All the FIDO authentication keys used for FIDO2 and U2F will be removed, so the device will be recognized as an unregistered even by Web services that have previously registered the device.



Do not remove SHALO AUTH from your PC until the firmware update is completed. Also, never allow the PC to sleep or shut down.

If SHALO AUTH has been set, you will be prompted to enter the SO PIN. If the following is appeared, enter the SO PIN and press ENTER.

#### SO PIN:



If the authentication of the SO PIN fails, the firmware update will be canceled. The SO PIN is also locked after a certain number of failed authentication attempts.



If the SO PIN has been locked, the following message appears. [ERROR ] SO PIN has been locked. Restore your SHALO AUTH to the factory settings.

SHALO AUTH blinks the LED during the firmware update. Finally, if the firmware update is successful, the firmware updater will exit with the following output.

```
Writing firmware ..... done!
Verifying firmware .. done!
Updated successfully!
```

After the message is shown, SHALO AUTH can be removed from your PC.

# Chapter 2

# Firmware version history

This chapter summarizes the changes made to each version of the SHALO AUTH firmware.

Version	Date	Description
1.5		Initial Release
1.6	2023-01-18	• Resolve the issue where SHALO AUTH does not wake up from sleep when SHALO AUTH is disconnected from the host OS.
		<ul> <li>Resolve the issue where SHALO AUTH does not wake up from sleep when using SHALO AUTH through certain self-powered USB hubs, if the USB hub is disconnected from the PC.</li> </ul>
2.0	2025-03-12	Support FIDO2 (CTAP 2.1)

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