

ST SA0022 SFI Secure Future Initiative Owner's Manual

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ST SA0022 SFI Secure Future Initiative



Specifications

- Product: STM32CubeProgrammer (STM32CubeProg)
- Versions Affected: V2.17, V2.16, V2.15, V2.14

FAQ

Q: How can I identify if my version is affected?

A: Check the version of the SFI RSSe binary file used in your secure programming tool against the list of affected versions provided in the user manual.

Q: How do I update to the fixed version?

A: Download and integrate the correct SFI RSSe binary files delivered within X-CUBE-RSSe v1.0.0 or higher as specified in the remediation steps.

Q: Where can I get further information or support?

A: For further information or assistance, contact your local STMicroelectronics sales office or visit www.st.com.

Overview

This security advisory pertains to the SFI security enhancement for STM32H5, STM32U5, STM32L5, and STM32WL5 microcontrollers.

STM32 SFI solution is implemented through an RSSe binary, which must be integrated inside the customer secure programming tool. Refer to Introduction to secure firmware install (SFI) for STM32 MCUs (AN4992).

Affected products

Product	Version	Type	Note
STM32CubeProgrammer (STM32CubeProg)	V2.17, V2.16, V2.15, V2.14	Tools	The tool itself is not affected, but some of the SFI RSSe binaries delivered as part of the tool are.

The user can get the STM32CubeProgrammer version from the listed path relative to the STM32CubeProgrammer installation directory:

- Under Windows®:
Path: ./STM32CubeProgrammer/bin/
Command: STM32_Programmer_CLI.exe -version
- Under Linux®:
Path: ./STM32CubeProgrammer/bin/
Command: ./STM32_Programmer_CLI -version
- Under macOS®:
Path: ./STM32CubeProgrammer/bin/
Command: ./STM32_Programmer_CLI -version
- The user can get the SFI RSSe binary version by editing the RSSe binary file. The version “x.y.z” is located in bytes [24:26]:
Byte 24: z digit – Byte 25: y digit
Byte 26: x digit
The impacted versions of the SFI RSSe binary file used in the secure programming tool are the following:

Table 1. SFI RSSe binary file versions used in the secure programming tool

STM32 product	SFI RSSe binary file location	Affected version
STM32H562/563/573	./STM32CubeProgrammer/bin/RSSe/H5/enc_signed_RSSe_SFI_STM32H5_v2.0.1.0.bin	v2.0.1
STM32H562/563/573	./STM32CubeProgrammer/bin/RSSe/H5/enc_signed_RSSe_SFI_STM32H5_v2.0.0.0.bin	v2.0.0
STM32H523/533	./STM32CubeProgrammer/bin/RSSe/H5/enc_signed_RSSe_SFI_STM32H5_512K_v1.0.0.0.bin	v1.0.0
STM32U575/585	./STM32CubeProgrammer/bin/RSSe/U5/enc_signed_RSSe_sfi_U5_2M.bin	v4.0.0
STM32U59x/5Ax	./STM32CubeProgrammer/bin/RSSe/U5/enc_signed_RSSe_sfi_U5_4M.bin	v4.0.0
STM32U5Fx/5Gx	./STM32CubeProgrammer/bin/RSSe/U5/enc_signed_RSSe_sfi_U5_4M_Tiger.bin	v4.0.0
STM32U535/545	./STM32CubeProgrammer/bin/RSSe/U5/enc_signed_RSSe_sfi_U5_512k.bin	v4.0.0
STM32L552/562	./STM32CubeProgrammer/bin/RSSe/L5/enc_signed_RSSe_sfi.bin	v5.0.0
STM32WL5x	./STM32CubeProgrammer/bin/RSSe/WL/enc_signed_RSSe_sfi.bin	v5.0.0

Description

When using the affected versions of the SFI RSSe binary, an attacker can corrupt the SFI image, leading to an erroneous application execution after the SFI procedure.

Impact

The execution of the application might be erroneous, leading to a denial of service.

Remediation

The user must use the SFI RSSe binary files delivered within the X-CUBE-RSSe v1.0.0 or higher:

Table 2. SFI RSSe binary files delivered within the X-CUBE-RSSe v1.0.0 or higher

STM32 product	SFI RSSe binary file location	Version fixing the problem
STM32H562/563/573	RSSe binary: RSSe_SFI_H56x_H573_v3.0.0.bin	v3.0.0
	Personalization data file: Perso_Data_H56x_H573_48402011_SFI._v3.0.0.bin	v3.0.0
STM32H523/533	RSSe binary: RSSe_SFI_H523_H533_v2.0.0.bin	V2.0.0
	Personalization data files: Perso_Data_H523_H533_4780101B_SFI._v2.0.0.bin	V2.0.0
	RSSe binary: RSSe_SFI_U575_U585_v5.0.0.bin	V5.0.0
STM32U575/585	Personalization data files:	
	• Perso_Data_U575_U585_4820200B_SFI._v5.0.0.bin	V5.0.0
	• Perso_Data_U575_U585_4820200B_SFIA_v5.0.0.bin	V5.0.0
	RSSe binary: RSSe_SFI_U59x_U5Ax_v5.0.0.bin	V5.0.0
STM32U59x/5Ax	Personalization data files:	
	• Perso_Data_U59x_U5Ax_4810200F_SFI._v5.0.0.bin	V5.0.0
	• Perso_Data_U59x_U5Ax_4810200F_SFIA_v5.0.0.bin	V5.0.0
	RSSe binary: RSSe_SFI_U5Fx_U5Gx_v5.0.0.bin	V5.0.0
STM32U5Fx/5Gx	Personalization data files:	
	• Perso_Data_U5Fx_U5Gx_47601016_SFI._v5.0.0.bin	V5.0.0
	• Perso_Data_U5Fx_U5Gx_47601016_SFIA_v5.0.0.bin	V5.0.0
	RSSe binary: RSSe_SFI_U535_U545_v5.0.0.bin	V5.0.0
STM32U535/545	Personalization data files:	
	• Perso_Data_U535_U545_45501015_SFI._v5.0.0.bin	V5.0.0
	• Perso_Data_U535_U545_45501015_SFIA_v5.0.0.bin	V5.0.0
STM32L552/562	RSSe binary: RSSe_SFI_L552_L562_v6.0.0.bin	V6.0.0
	Personalization data file: Perso_Data_L555_L562_47201003_SFI._v6.0.0.bin	V6.0.0
STM32WL5x	RSSe binary: RSSe_SFI_WL5x_v6.0.0.bin	V6.0.0
	Personalization data file: Perso_Data_WL5x_49701005_SFI._v6.0.0.bin	V6.0.0

- During the SFI firmware image creation process, the user must use an SFI RSSe binary with associated personalization data file version as described in the table above.

- For firmware image secure programming in production, the user must use a programmer tool supporting an SFI RSSe binary version as described in the table above.
- A new HSM must be programmed with a personalization data file version as described in the table above.

Contact information

psirt@st.com

Revision history


Table 3. Document revision history

Date	Version	Changes
16-Oct-2024	1	Initial release.

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References

- [User Manual](#)

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